SHOUT
SHARE
IT

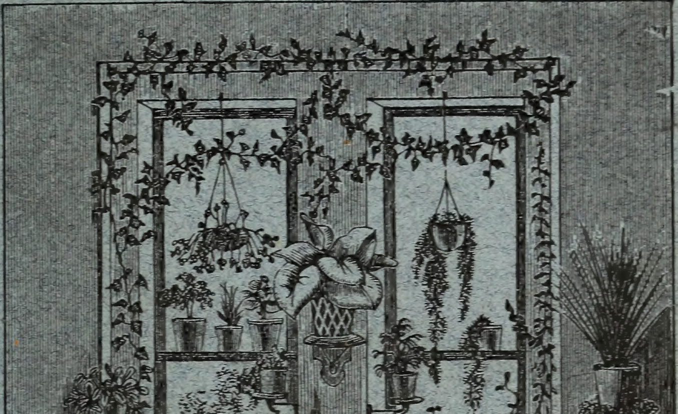
LIBRARY OF CONGRESS.

Chap. SB419 Copyright No.

Shelf .H75

UNITED STATES OF AMERICA.

WINDOW



GARDENING.

JAMES H. HOLMES.

Price 50 cts.

A MANUAL

ON

WINDOW GARDENING.

FOR

POPULAR USE

BY

JAMES H. HOLMES.

13/8793a

137934

MONTPELIER, VT.:
JAMES H. HOLMES, PUBLISHER,
1877.

Copyright
By JAMES H. HOLMES.
1877.

All rights reserved.

PREFACE.

THE design of this Manual is to provide a ready means of assistance in the cultivation of those window plants most commonly grown, particularly in winter, and to furnish an inexpensive book within the reach of those of the most humble means.

To this end the information has been collected with much care from every reliable source, supplemented by original observations of plants, and necessarily placed in its briefest form.

An alphabetical arrangement, according to botanical names, has been adopted as, all things considered, most convenient. Most house plants are known by their botanical name, yet many have several local or "common" names, confusing by their multiplicity. The thorough index completes the Manual as a ready reference for all.

A descriptive list of some plants available, though not so valuable for the window as those fully treated, is added.

MONTPELIER, *October* 15*th*, 1877.

INDEX.

PAGE.
Abutilon 27
Achania 28
Achimenes 179
Achyranthes 30
Agave 31
Ageratum 33
Air Layering 19
Air Plant (Tradgescantia) 170
Alamanda 179
Aloysia Citriodora 34
Alternanthera 35
Alyssum 36
Amaryllis 37
American Aloe 31
Ampelopsis Quinquefolia 180
Anemone 40
Angle Worms, to destroy 24
Anomatheca Vulgaris 180
Aphis, to destroy 23
Aqueous Vapor 17
Artilery Plant (Pilea Sepyllifolia) 184
Arrangement of Plants 21
Atmospheric Moisture 15–17
Azalea 41
Babiana 181
Bay Window for Plants 20
Begonia 44
Belgian Daisy 47
Bellis (Daisy) 46
Belladonna Lily 49
Bizarres (Dianthus) 81
Bleeding Heart (Dielytra) 86
Blue Bell (Campanula) 58
Bottom Heat 20
Bouvardia 48
Box, Zinc-lined for plants 12
Brompton Stocks (Mathiola) 119
Browallia 48

PAGE.
Butter Cups (Ranunculus) 148
Bulbs, Watering 14
Cactus 51
Calceolaria 53
Calla Lily (Richardia) 152
Camellia 56
Campanula 58
Canterbury Bell (Campanula) 59
Cape Heaths 88
Carnation (Dianthus) 81
Catalonian Jasmine 112
Cedronella Cordata 181
Centauria 60
Century Plant (Agave) 31
Chamomile (Pyrethrum) 148
Cheiranthus Chieri 60
Chinese Bell Flower (Abutilon) 27
Chinese Pink (Dianthus C.) 84
Chinese Primrose (Primula) 146
Chrysanthemum 62
Cigar Plant (Cuphea) 77
Cineraria 64
Cissus Discolor 181
Citrus Aurantum 65
Citrus Lemonium 67
Cleanliness of Plants 22
Clerodendron Balfouri 181
Climbing Fern 94
Cobea Scandens 67
Coleus 69
Coliseum Ivy (Linaria) 116
Convallaria 71
Convolvulus 72
Crassula 73
Crocus 74
Crows Foot (Ranunculus) 149
Cuphea 76
Cuttings, propagation by 18

Page.
Cyclamen Persicum........... 77
Cypress Vine (Ipomœa)........ 108
Daisy (Bellis)............... 46
Dames Violet (Cheiranthus Chieri)..................... 61
Damping off of Plants........ 18
Daphne Odora............... 79
DewPlant(Mesembryanthemum) 121
Deutzia..................... 181
Dianthus Caryohillus.......... 81
Dianthus Chinensis........... 84
Dielytra..................... 86
Dracenas.................... 87
Drainage of Pots.............. 12
Dust, injurious............... 22
Dusty Miller (Centauria)....... 60
Dusty Miller (Cineraria)....... 64
Dutchman's Breeches (Dielytra) 86
Easter Lily (Richardia A.)..... 152
East Window for Plants....... 20
Elk Horn Fern............... 94
English Ivy (Hedera).......... 97
English Violet (Viola Odorata). 175
Erica (Heath)................ 88
Eupatorium 90
Ferns....................... 91
Ferneries.................... 92
Fertilizer, liquid.............. 23
Flakes (Dianthus)........... 81
Fleur de Lis (Iris)............ 108
Flowering Flag (Iris)......... 108
Flower of Jove (Dianthus)..... 81
Foliage, Watering rough-leaved, 15
Forcing the Calla............. 153
    " the Convallaria 71
    " the Crocus 75
    " the Hyacinth......... 104
    " the Rose.............. 158
Fuchsia..................... 95
Fungus..................... 18
Furnace heat injurious........ 17
Geraniums.................. 134
    Ivy-leaved 130
    Sweet scented............ 138
    Zonales.................. 135
German Stock (Mathiola)...... 120
Gill-over-the-Ground (Glechoma) 181
Glazed Pots................. 11
Glechoma Hederacea.......... 181
Gloxinia.................... 182
Greenhouse, temp. and moisture of....................... 16
Golden Feather (Pyrethrum)... 149

Page.
Ground Aphis, to destroy...... 24
Ground Ivy (Glechoma)....... 181
Guano as a stimulant.......... 25
Gypsophila.................. 182
Hanging Baskets, drainage..... 13
Hare Bell (Campanula)........ 58
Heart's Ease (Viola Tricolor).. 177
Heat, injurious............... 15
Heaths (Erica)............... 88
Hedera (English Ivy)......... 97
Hedera Poetica............... 98
Heliotrope.................. 100
Hen Manure................. 25
Hibiscus.................... 101
Hoya (Wax Plant)........... 102
Hyacinth.................... 103
Hydrangia................... 106
Ice Plant (Mesembryanthemum) 121
Insects..................... 23
    Aphis.................. 23
    Mealy Bug.............. 24
    Red Spider.............. 24
    Scale................... 24
Ipomæa..................... 108
Iris (Flowering Flag)......... 108
Irish Ivy.................... 97
Italian Ivy.................. 98
Ivy (Hedera Helix)........... 97
Ivy, Coliseum or Kenilworth,.. 116
Ivy German (Senecio)......... 165
Ivy, Ground (Glechoma)....... 181
Ivy-leaved Geraniums......... 136
Ixias....................... 110
Jacobean Lily (Amaryllis)..... 39
Jacob's Ladder (Tradescantia).. 170
Japan Rose (Camellia)........ 55
Jasmine.................... 111
Jerusalem Cherry (Solanum)... 166
Johnny-jump-up (Viola Tricolor) 177
Jonquils (Narcissus).......... 128
Kenilworth Ivy (Linaria) 116
Kit-run-about (Viola Tricolor)... 177
Lachenalia.................. 113
Lantana.................... 113
Lapageria Rosea............. 182
Laurestinus................. 183
Leaf-mold 11
Lemon Tree (Citrus L.)....... 67
Lemon Verbena (Aloysia Cit.).. 34
Lily of the Valley (Convalaria). 71
Libonia Floribunda........... 115
Lime Water for Insects........ 25
Linaria Cymbalaria 116

Page.
Liquid Fertilizers 25
Living Room, air of 16
Loam 11
Lobelia 117
Lophospernum 183
Love in Idleness (Violet Tricolor) 177
Lysimachia Nummularia 183
Mahernia 118
Management of Plants 9–26
Manure 11
Mathiola (Stock) 119
Maurandia 120
Mealy Bug 24
Melon Thistle (Cactus) 51
Mesembeyanthemum 121
Mignonette (Reseda Odorata) 150
Mimosa (Sensitive Plant) 122
Mimulus 123
Money Wort (Lysimachia) 183
Monkey Flower (Mimulus) 123
Morning Glory (Convolvulus) 72
Mountain Daisy (Pyrethrum) 148
Muhlenbeckia Complexa 183
Myrsiphyllum Aspagoides 124
Myrtle 125
Narcissus 126
Nasturtium (Tropæolum) 171
Neapolitan Violet (V. Odorata) 176
Nerine Undulata 183
Nerium Oleander 128
Night Blooming Cereus 53
Nier embergia Gracillas 184
Nierembergia Rivulas 184
North Window Plants 21
Orange Tree (Citrus Aurantum) 65
Oleander (Nerium) 128
Ornithogalum Aureum 184
Othonna Crassifolia 184
Oxalis 131
Panicum Variegata 184
Pansy (Viola Tricolor) 176
Partridge Breasted Aloe 180
Passiflora 132
Peacock Iris 109
Pelargonium or Geraniums 134
Periwinkle (Vinca) 185
Petunia 140
Phlox Drumondii 142
Picotee or Pink (Dianthus) 81
Pilea Serpyllifolia 184
Pittsosporum 184
Plants, Additional List of 179—184
Plants, Arrangement of 21

Page.
Plants, Atmospheric Moisture for 16
Plants, Fertilizers for 25
Plants, Insects on 23
Plants, Lifting from Pots 13
Plants, Potting 11
Plants, Re-potting 12
Plants, Soils for 10
Plants, Suitable for North Window 21
Plants, Temperature for 15
Plants, Watering 15
Plants, Washing 22
Plants, Ventilation 22
Poinsettia Pulcherima 184
Polianthus Tuberosa 143
Potato, Common (Solanum) 166
Pots and Potting Plants 11
Primula Chinensis 146
Propagation of Plants 17–20
Pruning 26
Pyrethrum (Fever Few) 148
Ranunculus 149
Red Spider on Plants 24
Reseda Odorata 150
Richardia Aetheopica (Calla) 152
Rockery of Ferns 93
Rose 154
Russian Violet (V. Odorata) 176
Salvia (Sage) 161
Saxifraga 163
Scale on Plants 24
Schizanthus 185
Sea Pink or Sea Lavender 180
Sedum 164
Seeds, Propagation by 17
Selection of Plants 10
Senecio Scandens (German Ivy) 165
Sensitive Plant (Mimosa) 122
Shade-Loving Plants 21
Situations for Plants 20
Smilax (Myrsiphyllum A.) 124
Soap, Whale Oil for Insects 24
Soils, Constituents of 10
Solanum Pseudo-Capsicum 166
South Window for Plants 20
Spanish Iris 110
Sparaxis 185
Squirel Corn (Dielytra) 86
Stevias 168
Stimulants for Plants 25
Stock (Mathiola) 119
Stonecrop (Sedum) 164
Strawberry Geranium 163

PAGE.
Sulphur, Fumigation with 23
Sun, necessary for Plants 20
Sutherlandia 185
Swamp Honeysuckle 41
Sweet Alyssum 38
Sweet Orange (Citrus Aurantum) 65
Sweet Violet (V. Odorata) 175
Temperature for Plants 15–17
Ten Weeks Stock (Mathiola) 120
Thermometer, near Plants 16
Three-Faces-under-one-hood 177
Thrift (Armenica Vulgaris) 180
Thunbergia 169
Tongueing Plants 19
Tradescantia 170
Tritonia 185
Tropæolum 171
Tuberose (Polianthus) 143
Two Atmospheres of Plants 17
Wall Flower (Cheiranthus Chieri) 60
Walking Leaf Fern 94
Waltonian Case 20
Wandering Jew (Tradescantia) 170
Warty Aloe 180

PAGE.
Washing Plants 22
Water, evaporation of 16
Watering Plants 14
Wax Plant (Hoya) 102
Whale Oil Soap for Insects 24
White Mites or Ground Aphis 24
Windows, Double 16
Window, best for Plants 20
Wood Sorrel (Oxalis) 131
Working Roots, injured 12
Vallotta Lily (Amaryllis) 40
Vapor Aqueous 17
Vase of Centauria, etc. 30
Venus Looking Glass (Campanila) 59
Ventilation of Plants 22
Verbena 172
Verbena Mite 174
Vick, James 106
Vinca Major and Minor 185
Viola Odorata 175
Viola Tricolor (Pansy) 176
Zinc-lined Box for Plants 12
Zonale Geraniums 135

WINDOW GARDENING.

GENERAL MANAGEMENT OF HOUSE-PLANTS.

SOIL—POTS AND POTTING—WATERING—TEMPERATURE AND ATMOSPHERIC MOISTURE—PROPAGATION—SITUATION AND SUNLIGHT—VENTILATION—CLEANLINESS — INSECTS — FERTILIZERS—PRUNING.

So general is the desire for window plants at the present day that their cultivation is almost universal, and they have become, in a measure, a popular necessity.

Plant life is a never failing source of interest. It provides a diversion for the mind in leisure hours or from vexatious cares. Indeed, the mysterious principles of life and growth it presents, furnish physical and moral lessons of the most healthy character.

But, while house plants have been introduced into almost every home, and some succeed well in their cultivation, many meet a greater or less degree of failure and disappointment, which might be avoided by observation and by availing themselves of the experience of others.

The main points in rearing window plants, after having made a judicious selection of the best varieties of each kind, are to secure for them, as near as possible, the soil, temperature, degree of atmospheric moisture and the amount of light and water required by their natural habit.

SOILS.

Most plants will flourish in widely different soils if they have favorable atmospheric conditions as to moisture and temperature. Many florists have discarded the use of special soils, and pot nearly all their plants from the same heap of mold ; the conditions supplied by the greenhouse render the composition of the earth of less importance. But when subject to the vicissitudes of the living-room, plants should have every possible advantage to be derived from a congenial soil. We have, therefore, given the soil most desirable in the treatment of each plant.

The best constituents for compost are fresh loam, rotted stable manure, leaf-mold and sand. Those who cultivate many plants should keep a barrel or box of each of these on hand, from which they can readily prepare proper material for potting or shifting as becomes necessary. On the approach of winter a supply should be placed in the cellar.

Loam best adapted for house-plants is to be found under sods that have grown a long time, as in the corners of old fences. Sods piled up and rotted, thus combining loam and decayed vegetable matter, make an excellent potting earth that is extensively used by florists.

Stable or barn-yard manure, thoroughly rotted, the strength of which has not leached away by exposure to the weather, should be secured if possible, as a fertilizer of such plants as Roses and Carnations, which require an extra rich soil. The sweepings of paved streets, if moistened and allowed to rot, forms a good manure or partial soil, available in cities.

Clean, light leaf-mold from the forest is almost indispensable for lightening soils, and furnishing a food that is necessary to many plants, as the Ivy and Calla. It is also the best covering for small seeds.

Sand is also an important constituent of soil, rendering it friable and less liable to become packed or baked.

The different ingredients should be thoroughly incorporated by stirring together and sifting through a coarse sieve—a coal-ash sieve will do.

POTTING PLANTS.

The light colored (soft baked), porous pots, known as greenhouse pots, are perhaps the best for house plants, if they can be set in a box of sand to prevent too rapid an evaporation of moisture. But when they are to be surrounded on every side by the too often hot, dry, absorbing atmosphere of living-rooms, glazed pots are preferable. The glazing prevents evaporation, and the working roots which form against the inner sides of the pots are less liable to be injured by drying. On the other hand, careful attention must be paid to the drainage of glazed pots ; if this becomes obstructed, the plant is in danger from too much moisture. Those who have not much time to devote to plants, will find a zinc-lined box ten or fifteen inches wide, and four inches deep, in which to set porous pots and surround them with sand, convenient. Similar boxes two inches deep and four inches wide may be placed across half way up the window, for small pots of young plants.

It is important to select pots of a proper size. A very common mistake is made by giving flowering plants too large pots and producing a growth of foliage instead of flowers. Nearly all plants bloom more abundantly if their roots are somewhat restrained. Those cultivated for foliage should be supplied with plenty of earth, as an abundance of leaves is the main object.

When it is desired that plants should continue in a growing condition they should be repotted with a little fresh earth as often as the roots become matted against the sides of the pot, and before they lose their white suculent appearance from want of nourishment. An occasional examination of the condition of the roots may be made without injury to them, if carefully done, by lifting the pot from the inverted plant. The operation is very simple: place the left hand on the earth with the stem between the second and third fingers, and having turned the plant downward, tap the edge of the pot on some stationary object. A slight rap is usually sufficient to release the ball of earth. Never insert a knife between the earth and pot; it is certain to injure the roots.

Pots for newly rooted cuttings should not exceed three inches in diameter, and when filled with roots, they should be changed to those half an inch, or at most only an inch, larger. Pots should only be filled to within half an inch of the top, as that space is necessary for watering.

In potting, the soil should be settled among the roots by tapping, and carefully pressed around them so the plant will stand firmly. Wet soil should never be used, as it packs and becomes hard. After potting water thoroughly once to settle the earth. The plant should then be kept rather dry until it is well established and commences growth.

It is not necessary to fill the bottom of porous pots with broken crocks, or rubbish for drainage, except hanging baskets, or pots that have no outlet for water.

The exhausted soil may be carefully washed from the roots and replaced with fresh earth and the plants reset in the same pots. By this means a growth is produced that seems inadequate to the size of the pot. This method may be practised by those who have a limited space for plants or have no larger pots to shift into.

WATERING.

This is the chief regular attention the house plant demands. No general rule can supply the place of that observation and experience which enables those accustomed to the care of flowers, to readily determine the exact wants of each plant. As much care should be exercised not to over water, as to guard against excessive dryness. If the soil sours by being kept in a sodden state, it should be replaced with fresh, or the plant is ruined ; this condition of the soil is equally as fatal to the working roots as extreme drouth.

When the surface of the soil appears dry and will readily absorb water the plant needs it. The application should then be sufficient to saturate the entire soil, not merely the surface. No more water should be given until the surface of the soil again appears dry. An exception must be made to this rule in the case of bulbs, when forcing for bloom, and all semi-aquatic plants, which will admit of water standing in the saucers and a soil kept constantly saturated.

Plants in bloom and vigorous growth, always require more water than when in a dormant state.

If their growth is checked from any cause, they should be carefully watered. Very likely, nearly all the roots are destroyed, and they cannot use much water until new ones are formed. It should be remembered that plants in porous pots require more water than those in metal or glazed vessels, as it evaporates through their sides.

Watering should be done at a regular hour and in the early part of the day, to provide plants exposed to a hot sun, with a plentiful supply of moisture at their roots. On cloudy or rainy days, they will need less, and perhaps none at all. Plants in porous pots surounded by sand require water but two or three times a week.

Care should be used not to wet the foliage of rough leaved plants, as the Begonia or Chinese Primrose.

TEMPERATURE AND ATMOSPHERIC MOISTURE.

Extremes of temperature, as permitting plants to get too cold at night, and too warm during the day, have a tendency to check their growth and induce disease. Window plants are most frequently injured by too much heat. For a general collection of plants, a temperature that ranges from 60 to 70 degrees by day, and not below 45 degrees at night, will produce the best growth and the greatest amount of flowers. A high temperature, with insufficient light and ventilation, produces spindling and unhealthy plants.

Attention should be given, as far as possible, to the different temperatures, which different plants require. It must be remembered that if a Carnation and a Begonia, or a Rose and a Coleus, are grown side by side, one or the other must suffer from an improper degree of heat. Having noticed the temperature given for each plant under its treatment, so distribute them that the coolest locations at command be given to those demanding the lowest temperature. A thermometer should always hang in the vicinity of plants, out of the reach of the sun, that the window-gardener may be able to regulate the degree of heat.

Double windows are an excellent protection against frost in winter, and are necessary to the safety of window plants. But if not possible to have them a paper may be pinned against the window and the curtain drawn down to protect them from frost on very cold nights. The temperature of the green-house ranges from forty to fifty degrees at night, raising to seventy degrees during the day.

Temperature and atmospheric moisture are the main difficulties to contend with in the house. Every part of the greenhouse is kept in a splashy condition and the air is charged with moisture, while the atmosphere of the living-rooms of our houses is often hot, dry and dusty. It is important that moisture should be constantly supplied by evaporation from a vessel of water placed on the stove or under the grates of the registers, and by sprinkling the plants both night and morning. The dry heat of a furnace is especially injurious to vegetable life.

There are in reality two atmospheres, that of air and that of aqueous vapor, although we are not so accustomed to regard them. Water received into the atmosphere is not dissolved, but exists in a state of vapor, a distinct atmosphere, so to speak, from that of air, though co-existing with it, and discernible only when by reason of there being a large quantity and low temperature it is condensed. Plants cannot live for any length of time without this atmosphere of aqueous vapor, and they flourish in proportion to its existing in sufficient quantity.

PROPAGATION OF HOUSE PLANTS.

Nearly all window plants are increased by seeds or cuttings. Many species sport, or do not come true from seed, and the easiest, most rapid, and generally the best method, is to raise them from cuttings.

Seedlings are most conveniently grown by sowing the seed on the surface of light, rich soil in shallow boxes, and covering it lightly with finely sifted leaf-mold. The boxes may be two inches deep, filled to within half an inch of the top. Black leaf-mold is the best possible material in which to germinate seeds, as in this light substance they may be safely covered to a greater depth than in soil, and thus kept more moist. In soil they should be placed not much more than the thickness of their own diameter below the surface. Press the earth firmly, and water carefully to avoid washing the seeds out. A piece of thick flannel may be wet and laid over the surface of the soil, until the seeds germinate ; this will tend to preserve a uniform moisture and obviate the necessity of too frequent sprinkling, which must be very carefully done or the seeds will be washed up. The soil should be kept damp but not wet, with a temperature of about 60°. If the atmosphere is too dry, the box in which seeds are planted, may be set in a larger one, surrounded by wet moss and covered with glass. Tiny plants grown in the house are frequently attacked by a minute fungas, scarcely perceptible, soon after they are up, and "damp off," as it is termed. This must be guarded against by frequently raising the glass and giving them fresh air. If attacked with it, they should be promptly and carefully transplanted to another box of leaf-mold or soil, where they may be set half an inch apart. In a few weeks they may be transplanted to small pots ; this should be done before the roots get long and interlaced to such an extent that they are much disturbed or injured in removing.

PROPAGATION BY CUTTINGS.

There is little difficulty in raising plants from cuttings, taken at a proper stage of growth and placed in sand, having a proper amount of moisture and in the right temperature. Cuttings should always be made from plants in a vigorous state of growth; when budded for flowering, is the best time with many plants. With few exceptions they should be made of the unripened wood. Those of most soft-wood plants should be in that condition, they will easily snap when bent, rather than bend without breaking. Such cuttings root soonest and make most vigorous plants. This test does not apply to woody plants as Roses and Azaleas. Cuttings should not be allowed to wilt either before or after placing them in sand as this impairs their vitality. The best material in which to start most cuttings is clear sand free from any foreign substance, though soil, tanbark, brick or charcoal dust, cocoanut fibre and many other materials are sometimes used. Cuttings should not be made too long; three or four inches will generally answer. They will sometimes root best if cut a short distance above a joint, as the wood directly at the joint is often too hard to strike readily. Those cuttings that touch the sides of the box or pot usually root first. If cuttings of young wood are tongued, or partially severed from and allowed to remain on the parent stem a few days, they will root much more readily. This causes the end of the slip to become partially callused and less liable to decay than the young freshly cut wood and is termed "air layering."

Perhaps the most difficult point in striking cuttings is the temperature. Most cuttings root more readily, if supplied with bottom heat and the sand kept at a temperature ten or fifteen degrees higher than the atmosphere of the room. This is easily accomplished in the greenhouse, where the flues conducting heat run under the benches, but at home it is difficult; the use of a Waltonian case is perhaps the easiest method. Yet a larger per cent of cuttings will root and make fine plants simply placed in sand in the ordinary way.

Some forethought is required to make cuttings to produce blooming plants at the desired season. A little timely attention will reward the gardener with an abundance of flowers, while neglect can only be remedied by patronizing the florist.

SITUATION AND SUNLIGHT.

A south window is the best location for most plants, as sunlight is requisite to bloom them successfully. The east window comes next; one that receives the full rays of the morning sun. Those who have neither of these to devote to flowers will find a window taking in the afternoon sun answer admirably for many plants. The rays of the sun a few hours each day are necessary to develope flowers and produce a bright rich foliage with most plants, though there are quite a large class that do not require the direct sunlight. A bay window shut off from the room by glass is an admirable location for plants, as moisture can be retained and the hot dry atmosphere and dust of living rooms excluded to the infinite advantage of the occupants of the window, though not of the room.

NORTH WINDOW PLANTS.

A very satisfactory result may be reached even in windows from which the sun is entirely excluded by a judicious selection of ornamental foiliaged and other shade-loving plants. The following are names of a few plants suitable for north or other windows not having sunlight. Anemone, Achyranthes, Begonia Rex, Chinese Primrose, Coliseum Ivy (Linaria Cymbalaria), Convallaria (Lily of the Valley) Ferns, Lysimachia Nummularia (Monywort) Lycopodiums, Mountain of Snow and other Silver Leaved Geraniums, Mrs. Pollock and other Tricolar Geraniums, Pansies, Smilax and Violets.

ARRANGEMENT OF PLANTS.

A symmetrical arrangement of plants tends to enhance their attractiveness, grouping or separating them to produce the best effect. Some plants of elegant and graceful habit appear to advantage alone, their individual beauty is entirely lost when grouped with others. A large number produce the finest effects in groups. Their arrangement affords a wide scope for exercising refined taste. An eye for the beautiful is necessary to place each plant in such a position as to hide its defects, if it has any, and at the same time exhibit all its attractions, bringing out by effective contrasts, or harmonious blendings of flower and foilage, beauties that will be a continued feast to the eye.

VENTILATION.

Fresh air should be given plants daily, or when ever the temperature of the room rises too high. Especially in the mild days of winter the window garden should have ample ventilation. A vitiated atmosphere, as the unconsumed gas from lights or stoves, is as detrimental to plant as to human life, while frequent exposure to fresh air strengthens and enables them to endure the changes of temperature to which they are subject. Colorless, spindling, sickly looking plants denote a want of fresh air and sunlight. Direct drafts of cold air should however be guarded against.

CLEANLINESS.

House plants should be protected as much as possible while sweeping rooms, by throwing a light cloth or newspaper over them; yet with the best care much dust will settle on the leaves and obstruct the numerous and delicate pores, which help to maintain the vitality of the plant. Washing in moderately warm water once a week will remove dust and assist to guard against or exterminate insects. A plant may be placed on its side in the kitchen sink, and washed with a sponge or soft cloth, taking care not to wet the blossoms as water injures them. The foilage should be allowed to dry before returning to the sunshine. The stem and branches of all hard wood plants should be thoroughly washed as well as the leaves. A painters small sash brush is a convenient instrument with which to wash small stems and leaves.

The foilage of rough or woolly leaved plants as Begonia Rex and Chinese Primrose should not be wet, as water injures them, and especial care should be used to protect them from dust.

INSECTS.

The aphis or green fly, red spider, mealy bug and scale are the only dangerous insect enemies to plants and they should be vigilantly guarded against by cleanliness and good ventilation. A prompt attack should always be made on their first appearance. It is far more difficult to remove them after their number has become legion as it surely will if left undisturbed.

To destroy the aphis, the most common enemy, place the plant, being careful that the foilage is dry, under a barrel, and fumigate with tobacco not so dry that it will blaze by burning it on a shovel, letting the plant remain in the smoke fifteen minutes, after which wash or syringe thoroughly. Heliotropes, Lantanas, Salvias and some other plants with downy foilage will not bear fumigation without injury to the leaves. From such plants the aphis may be removed by brushing them off with a feather and washing the plant in warm water to kill the eggs.

The red spider which infests plants only when the atmosphere is hot and dry, may be effectually disposed of by repeatedly washing the plant in soap suds and keeping the atmosphere properly moist. This insect is a tiny mite, scarcely discernible to the naked eye, with a blood-red body and light red feet, but is a destructive enemy. Very slight fumes of sulphur will also destroy this pest.

The mealy bug is similar in appearance to the scale, except that it is covered with a white downy substance while the latter is smooth and brown. Whale oil soap is its aversion and a weak mixture in proportion of one pound to five gallons of water destroys them.

The scale like the mealy bug infests the bark and leaves and feeds on the sap of the plant. Few remedies except detaching them by hand are effectual. A very little alcohol applied with a broom splint or camels hair brush, is said, to kill this insect.

White mites sometimes called ground aphis occasionally appear in the soil in pots. They are destroyed with difficulty, and if possible, it is best to wash the infested soil from the roots and replace it with fresh earth.

Should angle worms be troublesome they may be driven away by lime-water, which will also invigorate the plant.

FERTILIZING.

Stimulants such as guano, ammonia, camphor, etc., should be very little used except it is desired to fôrce plants without regard to their subsequent value. Many plants will grow more freely if occasionally given a small quantity of liquid fertilizer, made in proportion of half-a-peck of well rotted stable manure to ten gallons of water, well stirred and allowed to settle, using only the clear liquid. Some plants, as Coleus and Camillias, will not endure its use. For the Ivy, Violet and some others, water leached from leaf-mould or decayed wood is most suitable as a fertilizer.

Guano when used should be in proportion of a teaspoonful to a quart of water. Hen manure may take the place of guano, and is a powerful agent to force bloom. A teaspoonful of aqua ammonia added to a gallon of water is a safe and valuable stimulant. All fertilizers should be used with caution and if the soil is rich and the plant growing and blooming well, it will not be necessary to use them at all. When the soil is fresh it will not be safe to use the fertilizer oftener than at intervals of two weeks ; but later after the richness of the soil is exhausted it may be given once a week, always using care to keep the plant well watered for a day or two after the application ; if the plant becomes dry and exposed to the hot sun, it is in great danger of being fatally burned.

No liquid fertilizer should ever be applied to a plant until it has formed working roots and is in a growing state.

PRUNING.

The symmetry of many plants depends upon the care and taste exercised by the gardener in pinching or pruning the shoots at the proper time. Most plants need pinching when the shoots are young to make them branch and form a compact growth; others require to be thinned out. All ill-shaped branches or those which grow out of place should be carefully cut off. After pruning the wood of plants from which the sap excudes, the cut part may be seared with a hot iron or the flow stopped by applying earth to the wound.

Many plants, as Fuchsias and Heliotropes, may be grown in any shape to suit the fancy by careful pruning and training.

It is usually best to prune away the old wood, as new branches appear. Suckers, or branches which spring from the base of the stalk should be removed.

POPULAR WINDOW PLANTS AND THEIR TREATMENT.

ABUTILON.

(FLOWERING MAPLE.)

Abutilon, an ancient name of a plant analagous to marsh-mallow, is now given to the well-known Flowering Maple or Chinese Bell Flower, a native of Brazil, Chili and New Holland. They are greenhouse ever-green shrubs of easy culture, free growing, attaining from two to six feet in height, and bearing a profusion of pendulous, bell-shaped flowers of various shades of white, straw, orange, rose, scarlet and crimson. The flowers of many varieties are exquisitely veined with contrasting colors, and the foliage of some is mottled with a bright golden yellow.

SOIL, WATERING AND GENERAL CARE.

A soil suitable is light sandy loam, not too rich, as they will grow tall so rapidly as to lack the side branches which are necessary to a symmetrical shrub.

They require a good supply of water, and prefer a cool, moist atmosphere, as they will not bloom in a hot, close room.

They should have good ventilation, but not exposure to cold drafts.

Prune freely in the spring and root the cuttings in wet sand to get new plants, which is important, as the old ones soon outgrow their quarters. In some of the newer varieties the tall straggling habit of the old is overcome and they bloom abundantly when quite small.

VARIETIES.

Abutilon Album, pure white.

A. Boule de Niege, white flowers, a new variety, of compact growth, and an abundant bloomer. All the old white sorts have been coarse growing.

A. Darwinii, entirely distinct, the flowers a deep orange scarlet, veined with pink, opening like a parasol, making it unlike all other sorts of Abutilons The flowers are thrown out beyond the foliage ; an abundant winter blooming variety.

A. Duc de Malakoff, variegated dark green leaves irregularly marked and shaded with bright yellow, retaining its variegations through the hottest and dryest weather.

A. Marmaratum, a beautiful hybrid, producing white flowers veined with rose.

A. Mesopotamicum, scarlet calyx, yellow petals.

A. Santana, flower bells of a large size, and of dark brownish crimson, veined with orange ; the darkest sort cultivated.

A. Striatum, an almost constant bloomer, bearing a profusion of pendulous golden flowers, veined with brown.

A. Thomsonii, variegated leaves, mosaiced with yellow.

ACHANIA.

This plant receives its name from the Greek, signifying not gaping, as the flowers never expand.

It is a native of Mexico, South America and the West Indies; was introduced to house cultivation in 1710. The Achania Malvaviscus is a shrubby plant, bearing at every season—for it is never out of bloom—scarlet blossoms which are succeeded by an ornamental white fruit. The foliage, flower and berries combine to make it desirable for house culture, though it seems to have been overlooked in the great variety of plants our florists offer us of later years. It is allied to the Hibiscus.

SOIL, WATER, GENERAL TREATMENT AND VARIETIES.

Two parts loam and one of leaf-mold, with a slight admixture of sand is a suitable soil.

Water regularly, but only when the surface of the soil indicates the necessity.

Cuttings, root readily in sand protected by glass. They should be taken off as near the stem of the plant as possible, not being so apt to root when severed at the middle of the shoot, and none of the leaves should be removed or shortened above the sand.

The plant should be taken in hand when young and trimmed to a symmetrical shrub. Grown in the form of a pyramid or cone, it best shows the flower and fruit to advantage. It should receive all the sunlight possible, and be frequently turned that all sides may be equally vigorous.

It is not subject to the attacks of insects.

A. Malvaviscus Arboreus leaves green, heart-shaped and sharply pointed. Auxiliary scarlet flowers, very beautiful.

ACHYRANTHES.

The name achyranthes from *achuron*, chaff, and *anthos*, a flower, is in allusion to the chaffy nature of the floral leaves. They are cultivated solely for the beauty of their foliage, being otherwise uninteresting. But their rich crimson or claret-colored leaves mingling or contrasting with other plants, render them so desirable that no collection should be without an *Achyranthes Lindenii* with its rich claret foliage, almost equal to flowers, especially in hanging baskets or windows where the sun shines through the leaves.

SOIL, WATERING AND GENERAL TREATMENT.

They grow well in common garden soil, need a good supply of water, with good drainage, and require very little care, thriving in the living room temperature of from 50 to 75 degrees.

They root easily in water, and may be kept growing in vases all winter if given fresh water once a week. A few of their branches mingled with Tradescantia, and cuttings of Centaurea, (Dusty Miller), make a collection of rare beauty for growing in a vase of water.

They may be set into the earth through the summer, as they endure the heat admirably, keeping their bright hues till frost appears, when they should be potted for the window garden.

If troubled with the aphis, as they are very likely to be, fumigate repeatedly, with tobacco until the pests disappear.

VARIETIES.

Achyranthes Aurea Reticulata, leaves bright green, marked with a net-work of bright yellow.

A. Gilsonii, an improvement on "A. Verschaffeltii"; leaves carmine, stems a rich shade of pink.

A. Lindenii, deep blood red, changing to crimson, leaves lanceolate.

A. Lindenii Aurea Reticulata, willow-shaped leaves. netted with yellow, bright carmine mid-rib and stems.

AGAVE.

(CENTURY PLANT.)

Agave, a word altered from *aganos*, admirable, is the very appropriate name for the stately American Aloe, a plant indigenous to a large area in the United States, Mexico, and South America. In nature its fleshy spiked leaves grow from three to six, and even eight feet in length, and from four to twelve inches wide; it is from ten to seventy years in reaching maturity, when throwing up a gigantic flower stem, often forty feet in height, it blooms and perishes. It has been said to flower only once in a hundred years, but is now known to flower sooner or later, according to the treatment it receives; being like the pine apple, forced forward by the application of bottom heat.

It is a plant of great historical interest. The

Aztecs applied the Agave to many important uses. From a paste of its bruised leaves they made a paper more soft and beautiful than parchment. Its thorns and fibres were needles, thread and cordage; its fermented juice, *pulque*, an intoxicating beverage, and its leaves thatched their houses.

Prescott says: "The Agave, in short, was meat, drink, clothing and writing material for the Aztecs. Surely never did nature enclose in so compact a form so many of the elements of human comfort and civilization."

The less massive plants are very ornamental for the parlor, but require too much room for many households.

SOIL, TEMPERATURE AND VARIETIES.

The Agave will flourish in any good sandy loam, and endure much ill treatment as to water and temperature, neither drouth nor heavy frost being sufficient to kill them. The main care is to give them but a moderate supply of water, to dust and occasionally wash their leaves.

They are propagated by suckers from the root.

Agave Coccima, a massive species, deep green leaves, armed with red spines.

A. Ghiesbreghtii, leaves bright green, bordered with red, and armed with red spines.

A. Milleri, free growing, with long variegated leaves.

A. Schedigera, edges of leaves white, from which hang long woolly filaments.

A. Xalapensis, leaves dark green, the edges thickly set with brown spikes.

A. Xylacantha, leaves glaucous green, with broad white margin.

AGERATUM.

The Ageratum derives its name from the clear and constant color of its flowers, as they will remain fresh for a long time after being cut. It is a native of Mexico, and while an old favorite, it is indispensable on account of its constant blooming for the garden; it is equally desirable for the window at all seasons of the year. The plant grows about fifteen inches high, and has a brush-like appearance. The flowers are white, lilac, blue and pink, and being adapted for bouquets are prized by florists.

SOIL, WATERING, TEMPERATURE AND PROPAGATION.

The proper soil is a light sandy loam.

Care should be taken not to water excessively.

It is not particular as to temperature.

Cuttings root freely in soil under a glass, or they may be grown from seeds sown at any time of year in order to produce plants as desired. For winter blooming sow seed the latter part of August and pot in October, or the blossoms of earlier sown plants may be pinched back through the Fall and permitted to bloom in early winter.

The foliage of the plants should be kept clean and fresh by occasional washing.

VARIETIES.

Ageratum Blue Tom Thumb, flowers of a beautiful light porcelain blue. Height six inches.

A. Imperial Dwarf, a variety of *A. Mexicanum*, which it resembles. Flowers blue.

A Mexicanum, flowers light blue.

A. Mexicanum Variegatum, leaves variegated with creamy white; flowers blue A valuable addition to variegated plants.

A Odoratum (fragrant), dwarf compact plant, flowers pink.

A Prince Alfred, a newer variety, habit medium, with flowers of a delicate lilac shade.

A. White Tom Thumb, dwarf, growing not more than six inches in height, profusely covered with bluish-white flowers.

ALOYSIA CITRIODORA.

(LEMON VERBENA.)

This plant was introduced from Chili in 1784, and named by a Spanish botanist in compliment to Maria Louisa, Queen of Spain. It is a half-hardy, deciduous shrub and indispensable for the parlor or greenhouse by reason of its delicious citron-scented foliage which is used in the construction of bouquets. Its flowers are of little beauty. It makes an attractive standard plant, having a neat habit, and it requires but little care.

SOIL, WATERING AND GENERAL TREATMENT.

A soil of equal parts loam and leaf-mold, and a little sand is suitable.

Give them a good supply of water when they are in vigorous growth, and withhold it entirely during the season of rest.

They like a moist atmosphere and a temperature of about 65° by day, 45° by night.

The Aloysia is easily propagated from cuttings, started in May or June, in damp sand, under glass. As soon as rooted, transplant to small pots and sink them in the open ground until October. On removing to the house give them a sunny window.

Plants over a year old will drop their leaves in the fall, when they should be placed in a cellar and allowed a few weeks' rest. They may then be brought up, pruned if necessary, and watered sparingly at first, but more freely as their growth increases, and they should have liquid manure once a week.

To make an ornamental standard plant, trim a single stem to the desired height, say three feet, and then allow it to branch out in a graceful form

ALTERNANTHERA.

The name Alternanthera refers to the stamens of the plant, being alternately fertile and barren. They are natives of South America. Though principally used for ribbon lines or borders in the flower garden, their bright foliage is an acquisition to the window and especially for the hanging basket. Their leaves are beautifully tinted, blotched, margined and variegated with the brightest colors, carmine and crimson hues prevailing. They reach a height of about six inches.

SOIL, WATERING AND VARIETIES.

They require a light rich soil composed of loam, leaf-mold and sand.

They need plenty of water and rather a high temperature, with full exposure to the sun to bring out their colors.

Cuttings root freely either in sand or soil.

Alternanthera Amœna, leaves yellow, brown and rose.
A. Latifolia, broad, smooth, autumn-tinted leaves.
A. Magnifica, leaves broad, yellow, scarlet and green.
A. Parychoides, leaves tinted green, crimson and straw-color.
A. Spathulata, leaves tinted carmine and green.
A. Versicolor, leaves tinted light rose to deep crimson.

ALYSSUM.

The name of this plant signifies to allay anger, and is derived from an idea the ancients entertained of its properties. It grows wild in many parts of Europe, and especially on the shores of the Mediterranean. The Sweet Alyssum, as it is commonly called, is a modest little plant with pure white blossoms, whose delicate fragrance, reminds one of the peculiar aroma of the hay-fields. The annual varieties grow six inches, and the perennial a foot in height. It can be had in bloom at all seasons, by seeding or from cuttings made at the proper times, and its flowers are very useful in making up bouquets, softening the brighter colors and enhancing their beauty.

SOIL, PROPAGATION AND GENERAL CARE.

Alyssum is suited with any good garden soil, and with the ordinary care as to watering and temperature.

Alyssum is easily propagated from seeds, cuttings or divisions of the roots. Plants from seeds sown in spring—either early under glass or later in the open ground—may be potted in October, and will bloom during the early winter. If cuttings are taken from these plants about the first of September they will bloom later in winter and in the spring. It is well to arrange to have two or more succession of fresh plants during the year.

The little black flea that attacks young cabbages and turnips is very fond of Alyssum. They may be destroyed by applications of tobacco water, dilute soft-soap, or dustings of fine ashes mixed with snuff.

VARIETIES.

Alyssum Benthamii, white, fine hardy annual.

A. Benthamii Compactum, a compact growing variety of the favorite old White Sweet Alyssum.

A. Wiersbeckii, white and yellow.

AMARYLLIS.

This plant has received the name of a nymph, celebrated by the poet Virgil. *A. Belladonna* was introduced from the West Indies in 1712. Some of the vast number of varieties are from Brazil and the Cape of Good Hope, but there are several hundred hybrids, and many are of surpassing loveliness, with large drooping, bell-shaped, lily-like blossoms, varying in hues, from white to the richest crimson. Some are striped with crimson or scarlet. Their gorgeous flowers can be produced nearly every month in the year. This with their ease of culture, makes them highly desirable for the window-garden. The habit and duration of several varieties differ widely.

SOIL AND GENERAL TREATMENT.

They thrive best in a soil composed of one part loam, one part peat, and one part well-rotted cow manure, with a slight mixture of sand. Pot either variety, except *A. Purpurea*, in six or eight inch pots, and having filled them with soil to within an inch of the rim, press the bulb down about half its diameter into it, then water thoroughly and give them an even moderate heat.

Amaryllis are increased by offsets from the bulbs.

The general treatment applicable to all the varieties of Amaryllis, except Purpurea, is that when growth commences, give water freely once a week and liquid manure occasionally. In a few weeks they will develop flowers. Often the first sign of growth will be the flower stalks, and frequently the second one will appear while the first is in bloom, and be ready to succeed it. The blooming season lasts about two months, after which it should be immediately repotted and given plenty of heat and water, that a vigorous growth may develope the bulb for future flowering. When the leaves show symptoms of ripeness, water should be withheld gradually and the bulbs allowed to dry off. On again bringing them out to pot for flowering, soak for one hour in water.

The special treatment of some of the varieties is as follows :—

VARIETIES.

Amaryllis Aulica. This is a species with large bulbs. The flowers are also large, the color green and scarlet, the long leaves of glossy green, rise from the crown of the bulb and droop slightly at the end Some bulbs will produce two or three strong stems from the side, each yielding two flowers. The bulbs of this variety seldom fail to bloom. Its season of rest is usually from August to December, when it should be sparingly watered, but unlike other varieties, should not be allowed to dry off.

A. Belladonna. This is the well-known Belladonna Lily, bearing large pale-pink, lily-shaped flowers on a stem eighteen inches high. A vigorous growth of leaves, followed by entire rest is essential to its successful flowering. Plant in August and by the middle of September the flower will appear. The flowering season is followed by an abundance of leaves.

A. Blanda, has an enormous bulb, flower buds four inches long, and flower stalk three feet high. The flowers are whitish. Treatment same as for A. Belladonna.

A. Formisissina is the Jacobean Lily. Flowers of rich crimson and peculiar shape, produced in June.

A. Johnsoni, a splendid bloomer, has been made to produce two crops of flowers yearly by giving them two months for blooming, two for growth and two for rest, though, doubtless, the better way is to give more time for growth.

A. Purpurea, (Vallota), a bright purplish scarlet, of dwarf habit. It throws up a strong flower stem in August about eighteen inches high and continues in blossom a long time. The bulbs may be potted any time in Spring, or even as late as June. After flowering they may remain in the pot until the following Spring, not be allowed to wholly rest, and should be kept cool and but slightly moist. Repot for flowering the following season.

A. Vitata, blooms in the house from April to June, flowers white, striped with rose. Requires a season of rest just before flowering.

ANEMONE.

Many species of this plant inhabit elevated, windy places; hence the name, from *anemos*, the wind. It belongs to the Ranunculaceæ family, and is found in almost all parts of the world, there being nearly a hundred varieties of it. Their foliage is beautiful, intensely bright green, and the flowers are of brilliant and varied hues and produced in great profusion, a constant succession of which can, by proper management, always be secured.

SOIL AND GENERAL TREATMENT.

Anemone require a rich soil composed of two parts strong loam and one part well-rotted cow manure.

They need only a moderate supply of water, and like a warm atmosphere, but not the noonday sun.

They are increased either from seeds, divisions, or offsets from the roots, and some of the species may be propagated from cuttings rooted in light loam under glass.

The roots keep well in a dry place for two years. For winter blooming select roots that have been out of the ground the previous season, as they produce flowers much earlier than those which have been growing without rest. Pot them in four-inch pots, three roots that will produce different colors in each. Press them firmly into the soil and cover to the depth of half an inch. Set them in a cool, shaded spot until the first of October, when they should be given a light warm location, but must be protected from the sun, which destroys their bright colors. After blooming they can be dried off gradually and kept for next year's use in a dry place.

VARIETIES.

Anemone Feu Superbe, bright scarlet.
A. Queen of the Netherlands, white and rose.
A. Lord Nelson, violet.
A. L'Ornament de la Nature, rich dark blue.
A. Queen Victoria, bright scarlet.
A. Rembrandt, carmine.
A. Rose Surpassante, rose.
A. Shakespeare, beautiful blue.

AZALEA.

This genus of flowering shrubs take their name from inhabiting dry places, though some varieties grow in swamps, as the "Swamp Honeysuckle," found in all the Atlantic States. The Azalea is a native of China and Turkey, as well as North America, and by cross fertilization and again crossing the hybrids with each other, florists have produced an immense number of greenhouse varieties, comprising all shades and combinations of color in white, yellow, orange, copper, rose, crimson, brick-red and purple. Beautiful specimens of Rhododendron are also sometimes cultivated as Azalea, the dividing line between the two genera being a puzzle to the best botanists. Azaleas have a compact shrubby growth, dark oblong ever-green leaves, and flowers growing in clusters of two or more at the ends of the branches, each flower of rare etherial beauty. Those of some varieties are fragrant.

Azaleas are becoming very popular. Elegant specimens may now be seen at florists, and in window gardens, tree-shaped, two or more feet in diameter, covered with hundreds of brilliant flowers. Twenty-five dollars are often asked by florists for these plants when in bloom. Mr. Sargent, in Brookline, Mass., recently had an *Azalea Indica decora* about five feet high and sixteen feet in circumference, nearly thirty years old, bearing more than 3000 blossoms. He was offered $1000 for his collection of about 200 Azaleas.

SOIL, WATERING AND PROPAGATION.

Azaleas should have a soil of equal parts of rich sandy loam and leaf-mold, well mixed though not sifted.

Give them but a small supply of water, though never let the soil get dry, and be sure of good drainage. The plant is subject to rottenness of the root if the soil becomes sodden through over-watering, while excessive dryness produces yellow and unhealthy foliage.

Azaleas require about the same temperature as Camellias, or from 40 to 45 degrees at night, and about 65 degrees during the day.

New plants may be propagated by cuttings, which should be taken off close to the parent stem, in sand under glass, or they may be multiplied by seeds. It would perhaps be as profitable for most people to obtain plants from the florist as to attempt their propagation.

GENERAL TREATMENT.

The Azalea is a rapid growing plant and requires frequent shifting, as the roots become pot-bound. Re-pot them as often as the pots are filled with roots. In shifting, first see that the ball of earth is completely moist, and pack the new soil firmly around the old with a small wooden rammer.

They need only sufficient pruning to keep them in good form.

Most varieties bloom in May, though by keeping the plants in a cellar and bringing them forward at suitable times a succession of Azaleas may be had in bloom from February to June, each plant remaining in flower from three to six weeks.

VARIETIES.

Azalea Amœna, flowers double purple, produced in great profusion in mid-winter.

A. Charles Quint, rose.

A. Fielden, white, very early.

A. Indica Lateritia, salmon.

A. Iveryana, pink and white.

A. Minerva, scarlet, profuse.

A. Narcissiflora Plena, six weeks in bloom.

A Punctata, variegated, fine.

A. Punctata Omnicolor, early bloomer.

BEGONIA.

The Begonia is named in honor of Michael Begon, a Frenchman and a promoter of botany. It is a native of South America, West Indies and China and is a fine genus of plants, remarkable for the varied and beautiful foliage of many varieties, and the splendor and profusion of the flowers of others. Their immunity from the attacks of insects, their capacity to endure drought, although they prefer moisture, their delight in warm temperature, and their growing well alike in partial shade or bright sun, all conduce to make them excellent house plants. While their foliage is their chief attraction the fringe-like flowers of some varieties, shading from white to scarlet, are very beautiful.

SOIL, TEMPERATURE AND TREATMENT.

They thrive well in a compost of two parts loam, two parts leaf mould and one part sand, and require a temperature from 65 to 70 degrees.

A moderate supply of water and good drainage is necessary. Many choice Begonias are killed by trying to grow them in hanging baskets and pots not properly drained. They need plenty of light and air, but must not have the hot sun or be placed too near the window. They are beautiful in hanging baskets or vases, but should be kept in the shade.

Begonias are easily propagated by cuttings placed in water or damp sand, but root most readily in water. Plants for winter blooming should be repotted in June and placed in a shaded location. Pinch off all the flower buds and keep them trimmed closely till the last of August, then allow them to grow. If inclined to sucker, as some varieties are, remove by cutting them out closely, and allow the central branches to extend their growth.

Begonias will not bear liquid manures, but may be given an application of aqua ammonia, one teaspoonful in two quarts of water, once in two weeks.

VARIETIES.

Begonia Alba, flowers pure white, and produced very freely.

B. Argyrostygma Veitchi, flowers pink, leaves spotted white.

B. Carnea, flowers bright carmine.

B. Foliosa, white, with neat drooping foliage, good for baskets.

B. Fucharides Alba, flowers pure white; finest winter sort.

B. Incarnata, foliage dark green, beautifully marbled and variegated with white, many of the leaves being entirely pure white, and some of the younger ones tinged with pink, and occasionally a stem upon which all the leaves are pure white. These variegated leaves when arranged among other plants exhibit finely. It also blooms as freely as the old variety.

B. Incarnata Grandiflora, possesses several characteristics which place it far ahead of the old *incarnata* variety. It is very strong growing and profuse-blooming, its flowers borne in large drooping clusters of bluish and rosy pink ; foliage rich dark green. It is one of the best varieties for cut flowers.

B. Incarnata Variegata, a valuable variety.

Begonia Glaucophylla Scandens, a new drooping or creeping species, with large panicles of orange-salmon flowers. One of the most beautiful plants in cultivation for hanging baskets.

Begonia Palmata, a new ornamental leaved variety, peculiar for its palm-shaped leaves.

B. Parnelli, leaves spotted silvery white on a dark green background.

Begonia Rex, foliage of immense size, tinged with crimson and emerald hues, varied with broad silvery zones, and snowy spots. The richness and quaintness of their coloring render them a picturesque ornament anywhere you can place them. They may be propagated by rooting part of a leaf in water or damp sand under glass. Florists divide a leaf so that each cutting includes a rib, burying the base of the cutting slightly in sand so closely together that the tops lap over each other. Thus a leaf will make many plants.

B. Subpelta Nigricans, forms a fine bushy plant. The leaves are a purplish bronze, with a metallic lustre. It is a very free-blooming variety, flowers shaded with salmon pink, entirely different from any other Begonia, and forms a pleasing contrast when placed beside the other varieties.

BELLIS.

(THE DAISY.)

The plant commonly known as the Daisy received the name Bellis in allusion to its pretty flowers. It is a native of Britain and Europe, has been cultivated for more than a century, and is now grown extensively in England. Cultivation has greatly increased the number of its petals and the brightness of its hues. It is much used for edgings to borders in our flower gardens, and the Belgian Daisy is admirably adapted to house culture, having tufts of green leaves and a profusion of beautiful flowers.

SOIL, WATERING AND TEMPERATURE.

A rich loam with a little mixture of sand is suitable for the Bellis.

It requires very little water through the summer, but the supply should be increased when it is growing and blooming during the fall and winter.

Keep it in a cool shady location in summer, and in a warm sunny place in winter. By resting the plant through the summer, giving it enough water merely to prevent its withering, and keeping it in the shade, its strength is reserved for growth and bloom in winter, when it should be placed in a sunny window and given liquid manure once a week. It will need re-potting every spring, when the roots may be divided—an easy way to propagate it. It can also be grown from seed which may be sown in pots in spring and the young plants reserved for winter flowering. The Bellis can be transplanted without checking its growth even when in bloom if the soil is kept about the roots.

BROWALLIA.

This plant was named by Linnaeus in honor of J. Browallins, Bishop of Abo.* The Browallia is a free flowering, half-hardy annual from South America. It grows about eighteen inches high. The stem is strong and much branched and bears delicate flowers, about an inch in diameter, ranging from dark blue to white. The Browallia has been generally cultivated as a flower-garden annual, but those who have tried it as a window plant warmly recommend it. A lady in Portland, Maine, who had a *B. Elata,* "a perfect mass of bloom beginning in September and continuously covered until late in January," has furnished us her method of treatment.

SOIL, GENERAL TREATMENT, AND VARIETIES.

A rich garden soil is suitable.

It requires an abundant supply of water while in bloom.

---

*Bishop Browallins wrote in defense of Linnæus, who was severely attacked for his system which discarded the cumbersome Latin names of plants hitherto used, and founded classes upon the number of stamens and orders upon the pistils. It was in gratitude therefore that Linnæus named this plant after the friend who supported him. They subsequently quarreled, and Linnæus is said to have named the different species to commemorate the friendship and its rupture. *B. Elata* is said to denote the extent of their attachment, *B. Demissa,* its decrease, and *B. Alienata* their alienation. The account, though interesting, may be fanciful.

The Browallia is increased by seeds, which for house plants may be sown the first week in June in a flower border where there is a sunny exposure. When the plants are well started, weed out the weaker ones and water those that are to grow, freely. By the middle of September pot them for the house, and if carefully removed neither the leaves or flowers will suffer. Sunlight and water liberally supplied will keep them in perfection four months. The plant may then be partially cut back, when a new growth will start for renewed blooming.

Browallia Alba, free-growing, white.

B. Elata Coerulea, blue, sometimes attains a height of three feet.

BOUVARDIA.

The Bouvardia is named in memory of Dr. Bouvard, superintendent of the Royal Paris Botanical Gardens, and is a native of Mexico and South America. They are of a shrubby character, bearing clusters of delicate and fragrant little tubular flowers whose colors shade from scarlet to white, or from pink to crimson. The plant produces an abundance of flowers and will bloom in the out-door garden from August to cold weather, and if taken in before frost, will continue to bloom all winter. The flower trusses sometimes measure four or five inches in diameter, and are excellent for bouquets.

SOIL, PROPAGATION AND GENERAL TREATMENT.

A suitable soil for Bouvardia is composed of leaf-mold and loam and a little sand.

They require a temperature of 70 to 75 degrees during the day and not less than 55 degrees at night, to bloom them in perfection.

Give them a plentiful supply of water when in bloom.

Bouvardia is usually increased by root cuttings, as those from the wood do not strike easily. The roots are thickly studded with what are called adventitious buds, and are cut half an inch or so in length, each piece containing a latent bud. These pieces are strewn on a prepared bed and covered with sand mixed with sifted leaf-mold. They are watered sparingly until growth commences, and when up two or three inches potted in two-inch pots and planted out in the open ground. These cuttings require a high temperature, and are generally propagated in April. A box covered by a pane of window glass will answer the purpose of the amateur for propagating the Bouvardia. Having pinched back the tops of the young plants one or more times during the summer they should be taken up and potted early in September to give them time to establish their roots in the pots before bringing them into the house, which must be done before the least frost touches them, as they are very tender. Lift them carefully without shaking the earth from the roots, pot them firmly, keep shaded and water freely, at least a week before giving them the full sun. Or another method, after potting, is to cut them back unsparingly, give them only a little water and place them in a cellar a month or six weeks, then bring them up, give them plenty of light and heat, and water them freely and they will soon begin to bloom.

VARIETIES.

Bouvardia Bridal Wreath, blush white.
B. Davidsonii, pure white.
B. Hogarth, deep carmine.
B. Hogarth Hendersonii, French white.
B Lady Hyslop, recent variety; light rose color.
B. Leiantha, scarlet, yellow anthers.

CACTUS

This name was used by Theophrastus to describe a spiny plant. It is now commonly applied not only to many species that belong to other genera of the order *Cactaceae*, but frequently to unrelated plants that bear a similar habit. In some localities Cactus is known as, "Melon Thistle." These plants, very interesting in appearance and variable in structure, are natives of North and South America. Many varieties of Cactus produce brilliant flowers, some are grotesque in form; all require less care than almost any other plant, and they are therefore a general favorite for the house, flourishing in the dry atmosphere of our dwellings under a neglect fatal to other vegetation, from having the capacity of storing up supplies of water for their sustenance through long periods of drouth.

The varieties most commonly cultivated belong to the families *Cereus* and *Epiphyllum*. The former are mostly tall-growing, and as the latter are drooping in their habit they are often grafted on their tall-growing relations to render them more showy. *Cereus Speciosissimus* makes the best stock to graft on.

SOIL, WATERING AND GENERAL TREATMENT.

Cactus thrive in a soil of two-thirds sandy loam to which add well rotted manure and lime rubbish or old plaster from walls.

Water sparingly while in growth. Some florists say, withhold water while they are not growing, but it is doubtless better to give them a little once a week if the atmosphere is dry and hot. They should have good drainage. Stagnant water at the roots causes them to decay rapidly.

They will live in almost any temperature, but do best in winter at from 40° to 45°, if they have plenty of light and are kept dry.

They are increased by cuttings which root readily if dried a little before planting.

VARIETIES.

Cereus Flagelliformis, a trailing species with deep rose-colored flowers.

C. Grandiflorus, the celebrated night blooming Cereus.

C. Mallonsonii, a hybrid variety with scarlet flowers.

C. Monstrosus, resembles a piece of rock-work.

C. Senilis, with long white hairs, giving it the appearance of the locks of an aged person, hence its name.

C. Speciosissimus, the most gorgeous colored of all flowers, of a rich crimson, shaded with purple.

Epiphyllum Ackermannii, bright scarlet flowers.

E. Alatum, white flower.

E. Jenkinsonii, bright rose-colored flowers.

E. Truncatum, and its varieties with scarlet, rose. violet and white flowers.

CALCEOLARIA.

This plant is named in allusion to the form of the corolla which resembles an ancient Roman slipper. It came from Peru in 1773, in a simple form ; but the art of hybridization has so increased the varieties, that a collection is in itself, a study and a wonder. Calceolarias are both shrubby and herbaceous ; the latter are best adapted for house culture. Their heavy clusters of golden, crimson, maroon, or rose-colored flowers, some plain and others curiously mottled or flecked, all singularly beautiful, entitle them to a place in every collection of window plants.

SOIL, PROPAGATION AND GENERAL TREATMENT.

Calceolarias thrive in a soil composed of three parts sandy loam and one of leaf-mold.

Water sparingly, as they are liable to damp off from an excess of moisture.

The temperature should be about 50° at night and 60° to 65° by day, with good ventilation, and all the sun possible, keeping the plants near the glass.

They are propagated from seeds or cuttings.

Seed should be sown in August in a sunny, sheltered spot, and the young plants transferred to small pots when two inches high at the same time pinching out the centre shoots to produce a stocky growth. As soon as the little roots touch the pots, shift the plants to larger ones.

Cuttings may be placed in damp sand under glass, and in the sunshine, taking care not to allow the temperature to get too high at mid-day. Either remove the glass or shade from the noon-day sun; as they need ventilation, the first is preferable.

Tie the plants carefully to supports. Old plants should be closely pruned and repotted in May, and left out of doors in a warm, shady location until September, scantily supplied with water, yet enough to keep them from withering.

VARIETIES.

Calceolaria Hybrida Grandiflora, very large fine flowers.

C. Hybrida Superba, fine strain, spotted and marbled in all shades of yellow, maroon, rose, white, and crimson, completely covered with masses of pocket-like flowers.

C. Hybrida Tigrina Nana, six or eight inches in height, and of very compact habit.

CAMELLIA.

The Camellia belongs to the same natural order of plants as the *Bohea* and *Viridis* which supply the well-known black and green teas of commerce, and is named in honor of George J. Camellus, a Moravian Jesuit, and traveler in Asia. It is a native of China and Japan, from whence it was introduced into English gardens about the year 1739, and perseveringly experimented upon for more than a century before its cultivation was thoroughly understood.

The *Camellia Japonica*, or Japan Rose, is a lofty tree in its native country, a beautiful feature of oriental landscape, and a splendid flowering shrub with us. Its blossoms vary from white to red and resemble the rose, but want its fragrance. It is universally admired for the magnificence and duration of its flowers and its dark-green, glossy, laurel-like leaves. There are more than three hundred varieties. The double white is the most valuable for winter blooming.

Camellias are grown by florists of large cities to an astonishing extent, and are the most important of all flowers used in the construction of bouquets. A cool, damp atmosphere is so essential to their successful cultivation that they cannot be generally attempted in living rooms, yet the treatment of so important a plant cannot well be omitted from any work on flowers.

SOIL, WATERING AND TEMPERATURE.

Camellias thrive in a soil of equal parts of sandy loam and leaf-mold or peat, though a rich light loam will answer. Any incorporation of manure, unless a very little and well-rotted, is positively injurious, nor will they bear any fertilizer whatever.

When growing freely they can hardly have too much water, which should also be frequently applied to the foliage with a fine sprinkler. After the season's growth is completed, partly withhold water from the soil. Provide the pots with good drainage, as the roots are liable to injury by standing water.

Camellias are natives of damp and shady places and a humid climate. The temperature for them ought not to exceed 45° by night and 65° by day. A winter temperature of 50° is most suitable, yet in summer they will endure a great degree of moist heat if in a shady location. The season for their highest temperature is in the spring after flowering and while making their growth.

PROPAGATION AND GENERAL CARE.

Camellias are increased from cuttings, which should be taken from the base of a leaf, or at a joint, as soon as the wood is ripened, and rooted in damp sand under glass. When they show signs of growth transplant to small pots. They are also very extensively propagated by inarching and grafting by florists. As either of these methods are not likely to be practised by amateurs, a description is unnecessary.

A north-eastern window is most suitable for them, as they are injured if exposed to the rays of the sun. They do well in rather small pots. Repot them before they make their growth in the spring. Forcing must be done in the spring while the plants are growing, immediately after blooming, when they will bear a temperature of 60 or 65 degrees at night with safety. By this treatment the buds are made to set, and produce early flowers in the ensuing fall and winter. It will not do to apply this heat at any other time. Care should be taken not to stimulate a second growth during the summer by applying too much water to the soil. Camellias are hardy greenhouse plants requiring only to be sheltered from frost.

The buds have an inclination to drop, caused by too great variations in temperature and too much or too little watering, when swelling, hence the importance of good drainage and an even temperature. If the plants are shaded when in bloom the flowers will remain in perfection much longer. Give them plenty of air at all times.

Cover the plants while sweeping. The surface soil should not be disturbed nor should they receive any liquid manures. The atmosphere should be supplied with moisture by the evaporation of water.

They are apt to be infested by the red spider for which a vigilant watch must be kept, the plant lain upon its side and the leaves thoroughly sponged, syringed or showered, both as a prevention and a cure.

It must be remembered that Camellias absolutely require a cool, moist atmosphere to grow them in perfection.

The white varieties are double the value of the colored.

VARIETIES.

Binneyii, crimson, striped with white.
Candadissima, late white.
Conspersa, striped carmine.
Double White, early.
Downing, deep crimson, blotched with white.
Duchess of Orleans, pink and white, striped.
Fimbriata, early white.
Imbricata, crimson and white.
Landrethii, rich rose color.
Reine des Fleurs, a rich crimson.
Sacco Nora, beautiful pink, blotched with rose.
Wilderii, a scarlet crimson.

CAMPANULA.

The name is diminutive of *Campana*, a bell ; on account of the resemblance thereto of the corolla. There are more than two hundred species of Campanula, natives of the colder portions of America, Asia and Europe, among which are included the famed Blue-Bell of Scotland—the Hare-bell of America. The roots of one variety, *C. Rapunculus*, are sometimes eaten.

The annual Campanulas become biennials by house culture, and are one of the finest plants for decoration in conservatory, greenhouse or garden. The perennial Campanula is the well-known Canterbury-Bell. The Campanula medium, is the only variety really entitled to the name that is commonly applied to all. Some new and valuable varieties have lately been produced. The double Campanulas are not desirable, for in them is lost that airy lightness and symmetry that constitute the greatest charm of the flower.

Only those who have plenty of room and care for the striking effect that can be produced by arranging these plânts in contrast will care to introduce them into the house. Some of the tall varieties bear racemes of flowers four or five feet in height.

SOIL, PROPAGATION AND VARIETIES.

Any rich loam or garden soil is suitable for Campanulas.

They are all easily propagated and cultivated. The less hardy kinds should be sown under glass and the small plants potted.

Campanula Calycanthema, calyx large, and same color as the corolla.

C. Speculum Procumbens, a quite new and distinct race of the well-known Venus's Looking-glass, growing only four inches high, and forming compact plants about twenty inches in diameter, completely studded with flowers which comprise all the colors and tints of the parent specie, and continue in bloom a much longer period.

CENTAUREA.

(DUSTY MILLER.)

With one of these plants it is said the centaur Chiron cured the wound made in his foot by the arrow of Hercules, and hence the name. They are from South Europe and Asia. Most of the species are ornamental-foliage plants growing from six inches to five feet in height. One of the kinds of the "Dusty Miller" is a Centaurea.

CULTIVATION AND VARIETIES.

The Centaurea require merely a good garden soil and the ordinary care as to watering and temperature. They are slow to root from cuttings, which can be started in water, but plants are easily raised from seeds.

Cautaurea Candida, a valuable plant, as a contrast with Coleus or Achyranthes. Leaves white, forming a neat compact bush.

C. Clementeii, a robust growing variety, forming a rounded mass of silvery-white leaves, deeply cut and fringed, six inches in height.

C. Gymnocarpa, attains a diameter of two feet, forming a graceful rounded bush of silvery gray, which contrasts admirably with dark foliaged plants. Its drooping, fern-like leaves are effective for hanging baskets.

CHEIRANTHUS CHEIRI.

(WALL FLOWER.)

The Wall Flower came into cultivation three centuries ago from Southern Europe, and the word Cheiranthus, is derived from its Arabic name and

Anthos, a flower. In ancient literature the praises of this old-fashioned flower were often sung. It is called an emblem of fidelity from a fantastic tradition with which it is associated. In ancient times it was much worn by English ladies and thus received the appellation of "Dame's Violet." The beauty and fragrance of its flowers borne in clusters of bright orange, yellow, or blue, make the plant attractive.

SOIL, TEMPERATURE AND GENERAL TREATMENT.

The Wall Flower requires a very rich soil composed of loam, leaf-mold and well-rotted manure. If grown in poor soil the flowers will become single.

It should have a temperature from 60° to 70°, with a moderate supply of water.

It is propagated from seeds or cuttings. Plants from seeds do not bloom till the second year in the garden: but if potted the first of September, and brought in-doors they will blossom the following March or April.

Cuttings taken in June from plants which are blooming in the garden may be rooted in sandy loam, and will make plants for blooming the next winter. As soon as they begin to grow, transplant into small pots.

VARIETIES.

Belvoir Castle, dwarf, campact variety. Very large bright yellow flowers.

Double-Branching, yellow.

Double-Dwarf blue.

CHRYSANTHEMUM.

This plant received its name from the Greek words meaning gold and flower, the prevailing color being yellow. It is a native of China and Japan and the emblem of royalty of the present sovereign of the latter country, its form or color being imprinted on his flag and all goods manufactured for his exclusive use. The genus embraces numerous varieties of great beauty, but the Japanese, the China and the Pompone are most commonly cultivated. It grows from one to three feet in height, yet the flowers of the hybrids obtain the enormous size of five inches, and in rare instances have been eight inches in diameter. The Dwarf or Pompone varieties are most suitable for the window.

The Chrysanthemum has a special value as a house plant, since it flowers in great profusion in early winter, when but few plants are in bloom. The fine form and brilliant color of the flowers which remain in perfection for weeks render them highly desirable. Few plants have such an extended range of colors, crimson, orange, yellow, pink, white, carmine and purple, blended in every conceivable shade.

SOIL, PROPAGATION AND GENERAL CARE.

A good soil for the Chrysanthemum is a mixture of loam, sand and well-rotted manure.

They require a moderate supply of water, with a temperature ranging from 45° at night to 70° by day. They are quite hardy; will endure a slight frost without injury.

The Chrysanthemum is easily increased from cuttings of the young shoots taken early in the spring, rooted in damp sand, and may be planted out in the open ground in May. For winter blooming they should be frequently topped through the summer to induce a bushy growth, and the flower buds pinched off till the first of October. If provided with large sized pots, placed in a cool, shady location for a few days, and then removed to a sunny window, they will yield a profusion of flowers for two months or more. After blooming they should be dried off and set in a cellar until spring, then brought forward, and again supplied with water. New shoots, which may be used as cuttings to supply plants for the succeeding fall and winter, will rapidly appear.

They are also propagated from seeds sown early in the spring, and the young plants treated in the same manner as cuttings.

VARIETIES.

Acton, golden yellow.
Atala, rosy lilac.
Boule Blanche, white, globe-shaped.
Boule de Niege, white, yellow centre.
Bouquet Blanc, white.
Canrobert, beautiful yellow.
Chameleon, pink, white and orange.
Countess de Mons, pale rose.
Golden Aurora, bright yellow.
Iris, white, tipped with yellow.
La Brazier, deep brown.
Mad. De Soulangis, pure rose.
Mignonette, deep purple.
Rosabella, carmine and white.
Sinbad, bronze purple.
Sunset, carmine.

CINERARIA.

This plant derives its name from *Cineres*, ashes, referring to the soft white down which covers the surface of the leaves. Some varieties of Cineraria are much admired for the richness and diversity in color of their flowers, which are produced in great abundance. Others are cultivated for the beauty and fragrance of their foliage. Some of the latter varieties are called "Dusty Millers," a name they share with the Centaurea. Their ease of culture, immunity from insects and striking effect renders them desirable for house plants. The dwarf varieties are an improvement upon the older sorts.

SOIL, WATERING AND PROPAGATION.

Cineraria requires a light sandy loam and but a moderate supply of water.

It needs a warm location, but not the noonday sun, doing best in west or south-west windows.

It is propagated by seed, by cuttings, and by divisions of the roots. The first method is preferable as cuttings root slowly and are somewhat uncertain, though they may be rooted in water or damp sand. Seed sown in sandy soil in May will make fine blooming plants in January. The little plants should be potted when two inches high, in small pots, and as the roots fill them change them to those of a larger size.

VARIETIES.

Cineraria Acanthifolia and Asplenaefola, beautiful white foliaged plants, a little in the style of *C. Maratima*, but with wider and longer leaves, hence more effective, dwarf habit.

C Hybrida, this is a Winter and Spring flowering species, hybrids of which are among the most gorgeous of green-house plants. The colors range through all shades of blue, violet, crimson, pink maroon and white.

C Maratima, a white foliaged plant, known as "Dusty Miller."

CITRUS AURANTIUM.

(SWEET ORANGE TREE

The genus Citrus, said to have its name from the town Citron in Judea, is native of tropical countries, and embraces the lemon and orange. These trees, beautiful in form, with shining-evergreen foliage, oderiferous flowers and fragrant fruit, were much cultivated years ago though now rarely seen.

The finest variety for house cultivation is the dwarf Mandarin or China Orange. The dwarf Otaheite is more commonly grown, but neither its flowers or fruit are equal to those of the Mandarin.

Oranges require more than a year to ripen, and remain on two years. The tree is thus in perpetual fruitage and exhibits blossoms, green and ripe fruit at the same time. A medium sized tree is said to have borne at once 20,000 oranges.

The treatment of the orange and lemon plant is identical.

SOIL AND GENERAL TREATMENT.

The Citrus require a soil of equal parts loam, leaf-mold and well-rotted manure.

A plentiful supply of water, with good drainage, is necessary when the plant is growing, but it should be given sparingly while resting.

They like rather a cool atmosphere though they will not bear the least frost, and should have plenty of light, but not the hot sun, except when the fruit is ripening. The full noonday sun injures the foliage.

Oranges are usually grown from seed and when a year or two old grafted or budded with a fine variety.

They should be pruned closely every five or six years, cutting off the shoots several inches. They will not need re-potting oftener than this, if they flourish well. When re-potted the earth should be well shaken from the roots, and the smallest fibres and mouldy roots cut back, then kept in the shade for three weeks and watered sparingly, after which they may be removed to a partially sunny location and the supply of water gradually increased as growth advances. A violent wind disfigures the foliage, therefore keep them indoors until the young growth hardens.

Apply liquid manure once in two weeks or oftener when growing.

They are liable to be infested with slugs and mealy bugs. The remedy is frequent and thorough spongings with soap-suds.

CITRUS LIMONIUM.

(LEMON TREE.)

The blossoms of the Lemon Tree are not as large as those of the Orange nor as pure white, the underside of the petals being tinged with purple. The fruit ripens irregularly and falls when ripe. As an instance of successful house cultivation of this plant a gentleman in Reading, Pa., grew one that in 1876 bore 23 lemons, ten by twelve inches in circumference, and weighing more than one pound each. In 1877 the tree was nine feet high, had 30 lemons of the same size. The seedling of a common lemon was budded with a large variety. The tree stands during the warm season in the yard, is in a half barrel, and each spring and fall part of the earth is freshened and mulched with dried cow-manure.

For treatment of the Lemon Tree see that of the Orange—*Citrus Aurantium.*

COBEA SCANDENS.

This vine is named in honor of B. Cobo, a Spanish priest and botanist, who first cultivated it in Mexico, where he found it growing in great luxuriance and beauty. It is an old favorite on account of its ample size, rapid growth, fine foliage and large, bell-shaped flowers. It thrives with little trouble, in the hot air of living-rooms, and will gracefully drape or festoon windows, mirrors or pictures—its tendrils cling to anything within their reach. The flowers are about two inches long, at first of a greenish hue, changing to a rich bluish-purple, and last a week or more. A new variety, *Cobea Scandens Variegata,* is the most suitable for house cultivation.

SOIL, WATERING AND PROPAGATION.

The Cobea requires a rich soil. Two parts loam, one of leaf-mold, one of well rotted manure, with a little sand, is suitable.

Plenty of water, with good drainage, is essential. If allowed to get dry it will wither.

It likes a high temperature 55° to 70°, and the sunlight.

The Cobea is easily increased by cuttings rooted in damp sand and with more difficulty from seeds. These should be planted in a hot-bed, in March or April, or in pots or a shallow box, protected by glass. Moisten the soil well. Set the seed edge down and cover closely with the glass. Unless the earth becomes very dry do not water until the plants appear, and when two inches high transfer them to small pots.

The roots of the Cobea must have room ; therefore give the mature plants a large pot. During the summer it may be removed to the porch or bedded out until fall, when it should be well pruned back and again placed in a sunny window where it will soon commence a new and rapid growth.

Cobeas planted two feet apart out-doors will make a close and beautiful screen. A plant taken up in the fall, set out in a box fifteen inches in diameter by twelve inches deep and the summer's growth cut back, will make a luxuriant winter vine.

COLEUS.

This name is from the Greek word meaning a sheath; referring to the manner in which the stamens are united. The Coleus was first offered for sale in this country in 1869. The varied and brilliant colors of its leaves makes it a valuable acquisition to the list of ornamental-leaved plants. When grown in perfection few flowers are more effective than its foliage for house or garden decoration. Florists are constantly increasing the varieties, each with new combinations of colors.

To cultivate the Coleus successfully a moist and uniformly warm atmosphere must be provided. They are, however, easily propagated and grow so rapidly that the loss of a plant is readily replaced.

SOIL AND GENERAL TREATMENT.

A rich sandy loam is suitable for the Coleus.

They want a moderate supply of water but no fertilizer whatever. It is sure to injure if not destroy them.

A temperature of not less than 60° nor more than 75° is most desirable. They are very tender, will not bear the least chill and prefer a sunny location.

The Coleus is increased by seeds or cuttings. The latter root very rapidly in water and should be potted as soon as the roots are half an inch long.

It is best to raise new plants each year for the house as they grow quickly and the old ones are generally coarse and unfit for the window. Pinch off the tops frequently to force a growth of side-branches or they will soon display an undue amount of leafless stems. Being very tender they should not be set in the open border until the season is well advanced.

The Coleus is not subject to the attack of insects, a strong recommendation in their favor.

VARIETIES.

Albert Victor, centre purplish red, broad yellow margin.

Aurea Marginata, rich velvet crimson with yellow margin.

Bauseii, deep chocolate crimson, leaves deeply serrated.

Brunette, velvet maroon, splashed green.

Canary, bright yellow.

Chameleon, purple, rose and green, novel.

Compte de Circourt, bronzy red, with blotches of carmine.

Eclat, bronzy crimson, golden edge.

Excellent, deep shade of maroon, netted with light green.

Frou-Frou, changeable yellowish green, centre blotched with maroon.

Gigantic, rich purplish maroon, yellow edge.

Hamlet, purplish maroon.

Merrimac, lemon-colored with large bronze blotches.

Mondani, bronzy crimson, narrow yellow margin.

Nonesuch, deep shade of crimson, yellow edge.

Refulgens, very dark maroon.

Rival, dark claret, crimson, yellow edge.
Shah, base of leaf rich violet crimson, upper half golden yellow.
Verschafeltii, rich velvet crimson.

CONVALLARIA.

(LILY OF THE VALLEY.)

The botanical as well as the common name of this plant is in allusion to the situation where some of the species grow. The Convallaria is stemless, with bright green foliage and has a raceme of tiny, bell-shaped flowers, nodding and fragrant. It is hardy and will thrive in almost any shady nook or corner of the garden where most other plants would not. The fashion in cities for the flower of the Lily of the Valley, produced by winter forcing, has recently so increased that the roots are extensively imported and the supply unequal to the demand.

PROPAGATION AND GENERAL TREATMENT.

They are increased by divisions of the roots.

The Lily of the Valley blooms in the Spring out of doors, but may be forced to flower in the house in the winter. Cut out the earth containing the roots late in the fall, after the ground is frozen, and place them in a cool cellar. When wanted for forcing they may be brought up and set in a warm location, as on a shelf over the kitchen stove, where they can have a moist atmosphere and a temperature of 70°. Water them carefully at first, increasing the supply as growth commences, and both leaves and flower will soon appear.

If not so fortunate as to possess a garden bed of Lily of the Valley, roots can be obtained from a florist. Plant them in a rich soil from three to six in a pot, according to its size. They may be grown in moss as well as earth, as they make little or no root before flowering, or they will grow finely in a Wardian case.

Only well matured roots, whose crown or "pip" is developed, will flower.

CONVOLVULUS.

(MORNING GLORY.)

Linnaeus named this plant from *Convolvere*, to entwine or wind about ; in reference to its habit. It was first introduced into cultivation from Southern Europe in 1597. The minor varieties are the easiest of all vines to raise in doors, and make an effective plant for the hanging basket or for any situation when a climbing or trailing plant is desired.

SOIL AND GENERAL TREATMENT.

The Convolvulus will flourish in any good garden soil, and requires but ordinary care. It is easily grown from seeds. For winter blooming sow late in the season, out-door, and pot them on the approach of frost.

Sprays of *C. Major*, gathered from the garden may be used for house decoration in summer. Placed in a vase of water the buds will open day after day for a week or more and remain open most of the day.

VARIETIES.

Convolvulus Mauritanicus, trailing, the flowers, borne freely, are bright blue, two inches in diameter. Perfectly hardy, of more slender habit than the other varieties, and continues a long time in bloom.

C. Minor, a garden annual, lies nearly prostrate, and projects just above its foliage masses of blue, white, and many colored flowers, fine for growing in vases or hanging baskets. Its blossoms are about two-thirds the size of the common Morning Glory.

CRASSULA.

This name is a diminutive of *Crassus*, thick ; in reference to its fleshy leaves. The plant is a native of the Cape of Good Hope. The Crassula produces from ten to twenty spikes, each containing hundreds of delicate, white, starry-shaped flowers. The succulent nature of the plant enables it to thrive in the dry and variable heat of the living-room, and as it can always be relied upon to bloom in mid-winter, when flowers are desirable, it is a valuable window-plant.

SOIL, PROPAGATION AND GENERAL CARE.

The Crassula likes a sandy loam and brick-rubbish soil, to which may be added some leaf-mold or rotted manure.

It requires an abundance of water except in the months of September and October, when it should be kept rather dry and be given rest to prepare for winter blooming.

The Crassula will endure any amount of heat, wants the full sun, should be kept in-door all summer.

It is easily multiplied by cuttings which should be taken off and laid for two or three days in the sun to dry. Start them in damp sand under glass.

As soon as rooted establish the plants in 2½-inch pots, in which they will bloom. Spring cuttings will make profusely-blooming plants the next winter if kept in small pots and allowed to fill them with roots. They should never be set out in the open ground.

After the plants have bloomed prune them into shape and keep them rather dry until they make new shoots. Then turn them out of the pots and shake off part of the soil, replacing it with fresh. Unless the plant is very crowded, which may be determined by the condition of the roots, a pot of the same size will answer.

CROCUS.

Crocus is said to be a Chaldean name, applied to this plant by Theophrastus. It is also stated to have been named for the youth, who, according to Grecian mythology, was changed into this flower. It has been cultivated in the garden for ages past, having been introduced into Britain from Turkey in 1605. By proper management it is made to bloom in the house. The blossoms have a long tube-like form, gradually enlarging upwards, with colors of white, yellow, purple, lilac, blue, and variegated. A fine display of them may be produced for the Christmas holidays. The period of bloom is brief, but the bulbs are cheap and flower soon after planting.

SOIL AND GENERAL TREATMENT.

The crocus wants a sandy loam enriched with well rotted manure.

It is increased by off-sets of the bulbs or by seeds.

The method of forcing them into bloom during the winter is to take the bulbs, which should be kept in a cool, moist atmosphere until wanted, and, if for Christmas, pot early in September, placing a number of bulbs in each pot three inches apart and covering them with an inch or more of earth. Make the soil damp and set the pots on dry sand in a cool, well ventilated cellar, or cold-frame, where they will have a temperature of about 50°. In a few weeks roots will have formed and a growth of foliage commenced. The pots containing the most advanced plants, those showing the flower-truss in the centre of the leaves, may be placed in a cool window, shaded from the sun, and plentifully supplied with water. In about a week they may be changed to a south window in a room warmed to 60 or 65 degrees. If the pots are warmed to a temperature ten degrees higher than the atmosphere they will advance most vigorously.

Give them an application of liquid manure once a week. If they grow too rapidly remove to a cooler room and give more air. A succession of bloom may be kept up by bringing them forward as wanted. The bulbs should be used but once for the second flowering is inferior.

VARIETIES OF CROCUS.

Albion, very large white.
Albertine, white-striped violet.
Charles Dickens, large purple.
David Rizzio, deep purple.
La Neige, snow-white.
Lord Palmerston, sky-blue.
Mammoth, pure white, very large.
New Golden Yellow, each bulb of this variety produces from ten to fifteen flowers.
Prineess of Wales, pure white, very large and fine.

CUPHEA.

The Cuphea is named from *Kuphos*, curved ; in reference to the form of the capsule. The species most commonly cultivated is *Cuphea Platycentra*, from Mexico, often called the Cigar Plant. The Cuphea grows about a foot in height, is extremely easy of cultivation, a profuse and constant bloomer, hence a desirable house plant.

SOIL, WATERING AND PROPAGATION.

A suitable soil for Cuphea is three parts loam and one each of sand and manure.

Water freely, supplying means of thorough drainage.

It thrives in a temperature from 60° to 75°.

Seed sown in the open ground during the late spring or summer will produce plants which, repotted in autumn, will yield an abundance of bloom throughout the winter.

They are also easily increased by cuttings started in sand or soil.

VARIETIES.

Cuphea Galcottiana, flowers nearly black.

C. Hyssopifolia, flowers small, tubular, of a purplish-lilac color.

C. Platycentra, (Cigar Plant,) tube of the flower scarlet, the upper end white and crimson. having a slight resemblance to a miniature lighted cigar.

CYCLAMEN.

The name Cyclamen is from the Greek word, meaning circular; referring to its leaves, which are heart-shaped. It belongs to the primrose family, and is a native of Europe and Asia, where in some localities it has the name of "Sowbread," for notwithstanding that all the species are noted for their acridity, its bulbs are the principal food of the wild boars of Sicily.

In all varieties both leaves and flowers shoot from the solid tuberous root. The flowers usually white, tinted at the base with a rosy purple, are of one petal, but deeply divided into five segments. After blooming the flower stalk coils in a spiral form and bends earthward and buries its ripened seeds in the soil.

The variety in common cultivation is *Cyclamen Persicum.* It is well adapted to the window. Without much care it gives an abundance of flowers in winter, and they are valuable as a variety for bouquets. The plant well deserves a wider cultivation than it has hitherto received.

SOIL, PROPAGATION AND TREATMENT.

For the Cyclamen a soil of light loam, enriched with leaf-mold. Small quantities of soot or charcoal well incorporated are said to increase the size and brilliancy of the flowers.

The temperature should range from 45° at night to 65° by day.

The plant seeds freely. To increase stock plant yearly. Seedlings bloom when two years old.

The Cyclamen does not require a large pot. Place the crown of the bulb just above the surface of the soil. Give water sparingly until the leaves appear, and then not enough to make the soil heavy or pasty, and observe that the drainage is unobstructed. Decrease the amount of water when the flowering season has passed, permitting the bulbs to dry off for a season of rest.

The blooming quality is injured if seeds are allowed to ripen. Florists bury the bulbs in an open border during the summer, taking them up about the middle of September, when they are found fresh and plump. Mice are fond of them and care must be taken that they do not get at them. After potting keep the plants in a cool place until the leaves are well grown. When the flower stems appear remove to a sunny shelf where they will soon bloom. Give them all the sun possible to promote flowering, after which by shading, the duration of the flowers may be prolonged two or three months, and this season having passed, gradually withhold water and let the leaves die.

DAPHNE ODORA.

This name is from *Daio*, to burn, and *phone*, a noise; the wood of the plant crackles when burning. The Daphne resembles the laurel, and is also said to have received the name of the goddess Daphne, who not favoring the suit of Apollo, desired the gods to aid her in escaping him. In answer to her prayers she was changed into a laurel tree. The Daphne Odora, introduced from China in 1771, is an old favorite, though latterly not much cultivated. It is a shrub attaining a height of four feet, with glossy-evergreen leaves and bears terminal branches of fragrant pinkish-white flowers, from December to March. It is one of the best of all woody plants for house culture.

SOIL, TEMPERATURE AND GENERAL TREATMENT.

The best soil for Daphnes is light loam, enriched with leaf-mold. The roots should have plenty of room, and may be repotted in the spring or fall.

They should not be over-watered, but are capable of enduring great heat and drouth, though to promote growth this plant should have a moist, cool atmosphere not above 45° at night or 60° during the day. The foliage should be kept clean by syringing, or washing in tepid water with a sponge.

The Daphne Odora may be increased by grafting on the common laurel, or by cuttings rooted in bottles of water hung in the sun. When an abundance of white roots are formed, break the bottle and carefully set the cutting out. Keep it moist for two weeks by sprinkling and covering with glass.

As this plant may be a household pet for years, it should be pruned when young into a symmetrical tree. It will bear the severest pruning, buds starting freely from all the young wood.

VARIETIES.

Daphne Odorata, flowers white or pinkish.

D. Odorata Rubra,buds red, flowers rosy-red and of a spicy fragrance.

D. Hybrida, hardy in England, flowers purple and fragrant, blooming at all seasons

DIANTHUS.

(THE CARNATION, PICOTEE OR PINK.)

The genus Dianthus, name derived from *dios*, divine and *anthos*, a flower, includes three members of the floral kingdom, *D. Caryophyllus*, the Carnation and Picotee, *D. Chinensis*, the Chinese Pink, and *D. Hortensis*, the Garden Pink, unrivalled for the fragrance and beauty of their flowers. The first named is the prominent variety for the window, and was introduced into cultivation nearly 400 years ago from Italy or Germany. The monthly Carnations bloom several times a year and are, therefore, most desirable. The distinction between the Carnation and Picotee is not botanical, but made by florists on account of the different marks of color in the petals. Under each of these names there are several classes as Bizarres, Flakes, etc., which include all colors, from white to dark velvety carmine, with their shades, veins, stripes and marblings, and as these are all undergoing constant transformations the nomenclature of the different varieties is confusing. But the old fashioned common name Pink applies to all members of the Dianthus family. The spicy fragrance, beautiful colors and durability of the flowers make them indispensable for the window, and justify the name "Flower of Jove."

SOIL, WATERING AND PROPAGATION.

A rich and congenial soil is indispensable to the Carnation, and there are curious old English receipts for preparing it. A soil composed of equal parts of sandy loam, leaf-mold and thoroughly rotted stable manure, to which may be added a little old lime rubbish, will suit them.

They should be watered rather sparingly, as a wet soil destroys them, and hence the importance of good drainage.

Though they will endure a low temperature, even a slight frost, they should have, when forcing for winter bloom, a temperature of 50° at night and 70° to 75° by day.

They are propagated by seeds for producing new varieties, and by cuttings, layers and pipings for increasing.

Seeds should be sown in April or May in sandy soil under glass, and transplanted when two inches high into small pots and thence to the open ground. They flower the second year. A seed rarely comes true to its variety. A celebrated Carnation grower states that the chance of obtaining a handsome Carnation from seed is as one to a hundred.

To raise cuttings, sever a half-ripened shoot just below a joint with a sharp knife, remove the lower leaves close to the stem, and if between September and May set out in a pot of wet sand, or compost, under glass. If of compost cover the top with an inch of sand The pots should have drainage. In the summer season cuttings may be put out in the flower border under glass and frequently watered. An inverted fruit jar will answer for glass. When the cuttings root they will commence to grow, and should be transplanted to small pots or two or three in a large pot, if preferred. Cuttings of the Dianthus root at a lower temperature than most other.

To increase by layers, when the plant is in full bloom or a little past, trim all except the two terminal leaves from a side branch, and cut upward through the third joint, commencing from the under side, half severing the stalk with an oblique incision. Fasten this point carefully to the earth with a hooked peg and cover it with an inch of sifted mold and water slightly. In four or six weeks, when they have rooted, separate from the parent stem and pot.

GENERAL TREATMENT.

Carnations may be bedded in the open ground early in the season, but plants which are designed for winter flowering should not be allowed to bloom through the summer. Cutting the flower stalks back also induces a stocky growth, their natural habit being tall and slight. Pot them in September, keep shaded a few days, then give them a sunny window and a frequent bath to keep their foliage fresh and free from insects. A weekly application of liquid manure benefits them, and will sometimes force a barren plant to bloom.

Florists enumerate several hundred varieties of Carnations. The following list embraces a broad range of colors, including the latest and most improved kinds.

VARIETIES OF DIANTHUS CARYOPHYLLUS.

Beauty, white with scarlet stripes.

Brightness, large bright scarlet, very double, clove fragrance.

Centennial, a new variety only 18 inches in height, an abundant bloomer, flowers white, very delicately striped with carmine, strong clove fragrance.

De Fontana, orange, shaded to purple.

Gauntlet, a new variety, a light shade of carmine.

Horace Greeley, slate, flaked with bright red, free-grower and profuse bloomer.

Indispensable, deep yellow flaked, with bright red.

Little Beauty, carmine edge, yellow ground.

La Purite, bright deep carmine.

Meteor, dazzling red.

Mrs. McKenzie, light rose, clove fragrance.

Oscar, yellow.

Snow White, new variety, always pure white, fine form, rich clove fragrance.

DIANTHUS CHINENSIS.

(CHINESE PINK.)

The Dianthus Chinensis, including the old Chinese Pink, now very much improved, and the new varieties from Japan known as *Dianthus Heddewigii* and *D. Laciniatus*, are among the most brilliant and useful of our garden flowers. The last two comprise many varieties, the result of hybridization, with flowers very large and double and of rich and varied colors. Few plants are more easy of cultivation, and as they bloom profusely through the winter, they are an excellent house plant, though not fragrant. The dwarf varieties are best suited for the window.

SOIL, WATERING AND GENERAL TREATMENT.

The Chinese Pink thrives in a rich loam mixed with a little leaf-mold.

They require an abundant supply of water.

A temperature from 60° to 75° is suitable.

They are easily propagated from seeds or cuttings. The former may be planted in June in good garden soil, and the flower buds pinched off until September, when they should be potted without disturbing the soil around the roots and kept shaded two weeks. Water sparingly till flower buds appear, then increase the supply, and give them a sunny and airy location, with an application of liquid manure once a week. Under this treatment they will flower constantly all winter.

Cuttings made in July or August when they are blooming out of doors will make fine plants for the succeeding winter. Take them off close to the root and place in damp sand or soil.

VARIETIES.

Dianthus Chinensis Heddiwigii, flowers three inches in diameter rich colors often finely marked.

D. Chinensis florepleno atropurpureus, dark red, double flowers.

D. Chinensis imperialis rubrus striatus, double white, striped with red.

D. Chinensis imperialis purpurenus striatus, double white, striped with purple.

D. Chininsis imperialis flore-albo, double white.

D. Chinensis laciniatus, flowers very large, petals deeply fringed, and beautifully colored.

D. Chinensis laciniatus flore-pleno, magnificent double flowers, very large petals deeply serrated.

DIELYTRA.

The word Dielytra from *dis*, double, and *elytron*, a sheath, alludes to the sheath-like spurs at the base of the flower. The plant is a native of North America and Northern Asia. Of the varieties one is known as Squirrel Corn, another as Dutchman's Breeches ; the best variety is *D. Spectabilis*, from China, sometimes called Bleeding Heart, from the form and color of the flowers. These are borne in graceful drooping racemes a foot or more in length. The plant is perfectly hardy and valuable alike for the garden, conservatory or window.

SOIL, TEMPERATURE AND GENERAL TREATMENT.

The Dielytra thrives best in a light sandy loam.

It requires a temperature of about 60° and a moderate supply of water.

It is propagated by division of the roots or by seeds.

The Dielytra should be taken up in October and set in a sheltered place for a month, giving a little water daily. When the young shoots appear place the plant in the sunny windows of a cool room, and as it grows increase the supply of water. When through flowering remove to a shady place and withhold water gradually till the leaves turn yellow, when it should be allowed to rest and moistened only enough to keep it alive. The following autumn supply it with fresh soil and proceed as above. The roots should be divided yearly or be given more room for growth.

DRACENAS.

This plant, named from *drakina,* a female dragon, belongs to a genus of endogenous plants, natives of India, of which one species affords the resin of commerce called dragon's blood. Dracenas are cultivated for the beauty of their foliage. The graceful, palm-like form of growth and intense coloring of some varieties give them high rank among the ornamental-leaved plants. A few years ago they were seen only in collections of choice green-house plants. They will flourish in the living-room under ordinary treatment, and make beautiful standard plants for vases and hanging-baskets; their pleasing tropical habit rendering them very suitable for house decoration.

SOIL, TEMPERATURE AND PROPAGATION.

Dracenas thrive in a light, loamy soil.

They like a temperature of from 50° to 75°.

Large cuttings root freely in sand, provided there is a strong heat.

VARIETIES.

Dracena Australis, long, graceful, narrow leaves.

D. Brasiliensis, broad, deep-green leaves.

D. Congesta, narrow green leaves.

D. Guilfoleyii, variegated white and green, rare and beautiful.

D. Indivisa, green and bronze, narrow leaves.

D Nobilis Stricta, marked with crimson.

D Terminalis, a variety most used, easily managed; foliage rich crimson, marked with pink and white.

ERICA.

(HEATH.)

Erica is from the Greek, signifying to break; in allusion to the brittleness of the stems. The Heath is a shrub used in Great Britain for brooms, thatch, beds for the poor and for heating ovens. More than a thousand species exist; several hundred have been cultivated in Europe, where they are grown to perfection and are considered the finest of all hard-wooded green-house plants. In this country they are cultivated to a much less extent; the hot summers of our climate render the growth of many of the varieties very difficult. A few of the free-winter-flowering Heath are desirable on account of the delicate beauty of their flowers, in shades from purple, through red to white, and are used in bouquet making. Those usually cultivated are from the Cape of Good Hope, and known as "Cape Heaths." Though not recommended as window-plants, their great beauty will reward those who can devote time to their cultivation.

SOIL, WATERING, PROPAGATION AND TREATMENT.

The free-growing Heaths thrive in black fibrous peat. The dwarf hard-wooded kinds should have a considerable mixture of sand with the peat. Either will grow well in partially decayed leaf-mold.

They should have a moderate supply of water. That which contains lime or salt is injurious to them and rain water is best. The dwarf hard-wooded kinds need less than the free-growers. As stagnant water at the roots will destroy them, good drainage is essential. A careful attention must be given to the regular and proper amount of water. A day's neglect or a drenching is equally fatal to the hair-like roots, which cannot survive being either parched or sodden.

Heaths want a low temperature ; nothing short of frost is too cool for some varieties. Give them a cool part of the house in winter and a shaded northern exposure in summer.

The seed of Cape Heath in mixed varieties, is sold by florists.

The Erica is easily increased from cuttings. In March take an inch of the tops of the young shoots and place half their length in damp sand, under glass. Shade from the direct rays of the sun, give air daily ; keep them slightly moist and pot them as soon as rooted, in small pots. When the danger of frost has passed set them out in the open ground in a location shaded from the noon-day sun. These will make flowering plants the next winter. In September pot and keep them in a cool shaded place until they get established.

Old plants should remain in pots through the summer. They may be sunk in the earth in a shady place, and well sprinkled every evening. Re-potting is necessary only when the roots become matted around the sides of the pot and is usually done in the spring. Prune or pinch back the plants sufficiently to keep them from growing tall and spindling.

VARIETIES.

White or Light-Flowered.—Arborea, Margaritacea, Grandinosa, Boweana, Jasminiflora, Conferta, Vestita alba, Odorata, Ventricosa, Pellucida, Wilmoriana, Caffra alba.

Red Flowers.—Gracilis, Ignescens, Mediterranea, Caffra Rubra.

Scarlet or Crimson.—Ardens, Cerinthoides, Hartnelli, Splendens, Coccinea, Vestita fulgida, Tricolor.

Purple Flowers.—Amœna, Mammosa; Melanthera mutabilis, Propendens tubiflora.

Lilac.—Baccans, Suavolens.

Yellow.—Cavendishii, Depressa, Denticulata.

Green-Flowered.—Gelida, Veridiflora, Viridis.

EUPATORIUM.

This plant is named from Eupator, King of Pontus, who used it as a counter-poison. Many species of this extensive genus are scattered over the United States. Both foliage and flower of the cultivated kinds have been improved by the florist, and the white varieties are in great demand for funeral decorations, as well as for weddings and banquets. They are almost indispensable in bouquet-making, for their delicate tassel-like flowers contrast admirably with those of brilliant colors.

SOIL, PROPAGATION AND GENERAL TREATMENT.

The Eupatorium should have a sandy loam containing some leaf-mold or peat.

Give it plenty of water, and a low temperature.

It is easily propagated from cuttings, which may be rooted in damp sand. Those started in spring will, if pinched back, make fine blooming plants for the following winter. Slips taken early in June, grown in the flower-garden until September, and then carefully potted, kept shaded for a few days and their buds pinched off until November, will bloom profusely until February. If wanted for later flowering, give them as low a temperature as possible without freezing through the first part of the winter. Full sunshine impairs the whiteness of the flowers. Eupatoriums should be well cut back in the spring, the earth shaken from the roots, and re-potted in fresh soil. If the plants are intended for the next winter, sink the pots in the earth and by pinching off the buds, prevent their blooming in summer.

VARIETIES.

Eupatorium Ageratoids, pure white.
E. Arboreum, flowers from November to January.
E. Elegans, flowers from November to March.
E. Mexicanum, pure white.
E. Salieifolium, flowers throughout January.

FERNS.

Ferns are an order of cryptogamous or flowerless plants called *Felices*, having their fructification on the back of the leaves or fronds, as their combined foliage of stem and leaf is termed. The genera number over 2000 species, generally inhabiting humid regions, sometimes growing parasitically on trees, and includes many curious and interesting varieties, from the slight feathery native of New England to the monster tree-fern of the tropics. It is supposed this was among the earliest forms of vegetable life, and that in the far distant past fern-forests covered the earth.

For house cultivation most ferns need the protection of a Fernery or Wardian case, though a few succeed well without it, and produce a fine effect with but little attention. Their pleasing symmetry of form, and their adaptability to growing in the shade, make them a desirable house plant.

SOIL, WATERING AND GENERAL TREATMENT.

Ferns have fine roots and require a light soil of leaf-mold or peat mixed with a little sand. The former is preferable. The soil should be broken fine but not sifted.

Tepid rain-water should be given copiously once in two or three days, but must not stand about the roots, as it will cause them to decay.

They thrive best in a cool moist atmosphere ; will even endure considerable exposure to frost. Ferns should not receive the direct rays of the sun. They are usually free from insects. All the care they demand is an occasional washing or syringing to clear their leaves of dust ; in a Fernery even this slight trouble is unnecessary. Re-pot them annually late in the Fall.

The exotic Ferns are best adapted for house cultivation; but some of our native species, with proper management, will thrive in cool rooms, and in Ferneries they do quite as well as the foreign varieties. Select small species, remove them carefully with earth enough for future growth, disturbing the roots as little as possible. Make their soil firm, keep them in a cool shady, airy location, water plentifully and they will flourish as in the quiet nooks of their native woods. They appear to a fine advantage arranged in a rockery. One is easily made with a wooden bowl or any shallow vessel. Place first a layer of charcoal and pebbles, then a bed of leaf-mold, on this a mound of odd-shaped rocks, filling in the interstices with leaf-mold, in which firmly plant the Ferns, a tall-growing one in the center. Around the edge set Sedum or some trailing shade-loving plants.

A few of those varieties best adapted for house cultivation outside the Fernery are given.

VARIETIES.

Adiantum Affine, a delicate Fern from New Zealand, easily grown.

Adiantum Cuneatum, a beautiful Brazilian species, propagated so readily from spores, that young plants often come up in adjacent pots.

Adiantum Pedatum, the native Maiden-hair Fern.

Adiantum Capillus Veneris, the English Maiden-hair Fern.

Blechnum Brazilienese, a large, coarse, but handsome Fern.

Lygodium Scandens, a climbing Fern from the East Indies, growing rapidly like Smilax, as easily cultivated and used for similar decorative purposes. climbing, when supported by strings or wires. It may also be used with equal advantage as a drooping plant for baskets or vases.

Niphobolus Lingua Corybiferum, an evergreen species from Japan, China and the East Indies; fronds simple, entire, dark green on the upper surface, spread with white stellate scales, their under surface covered with drab or brown scales, easily grown in a cool atmosphere.

Platycerium Grande, or Elk-horn Fern, so named from its branched form, a curious species of epiphytal Fern from Australia and neighboring islands; can be grown on corks or pieces of wood with Sphagnum Moss, if kept liberally showered; a curious and beautiful ornament,

Pteris Cretica Alba Lineata, fronds with a clear white center and mid-rib, the only variegated Fern which will thrive in the house.

Pteris Serrulata, the most common of exotic Ferns, native of the East Indies, a large, rapid-growing species, comes up so readily from spores in Fern-houses as to become a weed.

RARE NATIVE FERNS.

Lygodium Palmatum, or climbing Fern, a beautiful, somewhat rare native species, growing on moist, shady banks of some parts of New England and Pennsylvania. It has slight running root-stalks, from which proceed slender twining flexible stalks, with smooth palmate frondlets, which are sterile. The fertile frondlets are on the ends of the stalks in compound terminal panicles. The running stalks are often three or more feet long, and the whole plant is suggestive of a delicate miniature ivy. It is in great demand for house decoration in a dried, pressed form, which process does not in the least injure its beautiful green, and if tastefully arranged on walls it appears as if actually growing there. It is not recommended for house culture except in Ferneries where it is surpassingly beautiful.

Walking Leaf Fern, a rare and curious native Fern, growing in tufts with simple spreading, evergreen fronds, heart-shaped at the base, tapering gradually into a runner-like appendage, which roots at the apex, and a new plant is produced, that in time sends forth another stepping leaf. Borne irregularly on the reticulate veins of the frond, are the oblong fruit-dots, those towards the edge of the frond seemingly arranged in pairs.

FUCHSIA.

The Fuchsia was named by the French botanist Plumier in honor of the celebrated botanist Leonard Fuchs, author of Historia Stirpium, in 1542. It ranks among the most beautiful plants of the temperate flora of Mexico and Chili, and was first introduced from the latter country in 1788. In South America they attain the size of trees. It is an admirable house plant, easily cultivated with fine foliage and a profusion of graceful pendulous flowers, having a wide diversity of coloring in the different varieties. The Fuchsia naturally blooms in summer and autumn, but can be made to blossom abundantly in winter and spring, and indeed with proper management, nine or ten months of the year. The double Fuchsias are not free winter bloomers, though some of their varieties are most beautiful, and if their buds are pinched off through the fall will bloom as early as January.

SOIL, WATERING, TEMPERATURE AND PROPAGATION.

Fuchsias need a light rich soil of equal parts sandy loam and leaf-mold, to which should be added a little well-rotted manure.

They should have an abundant supply of water, with good drainage. If allowed to become too wet or too dry the buds will drop.

A moderately moist atmosphere is congenial to this plant, with a temperature of from 50 to 65 degrees. They can be grown in an east, west, or even north window, not requiring the direct rays of the sun, though to secure luxuriant growth and profuse bloom the morning or afternoon sun is necessary.

They are increased by cuttings which root easily in sand or soil if kept quite wet. When protected by glass they should have frequent ventilation, being liable to damp off. The new woody shoots make the best cuttings. Plants rooted early in the spring will bloom the ensuing fall, though it is better the buds be pinched off until the plant has a year's uninterrupted growth before flowering. Young Fuchsias should be pruned into the desired shape before the shoots become woody. They can be trained to a trellis, in an umbrella shape, as a climbing plant, also in the form of a tree or shrub.

GENERAL TREATMENT.

It is important that the Fuchsia should be repotted as soon as the roots touch the sides of the pot, and the plant kept in a constant state of growth until it blooms. Those who have a limited space or wish to cultivate a variety of Fuchsias will find young plants much more desirable than older ones. Old plants should be removed early in the fall to the cellar, and water withheld from them and their leaves allowed to drop. Bring them up late in January. Prune freely; dig about the roots; water carefully at first and more as growth advances, giving also liquid fertilizer.

Fuchsias may be watered occasionally with water impregnated with iron rust. Through the winter a luxuriant growth and profuse bloom may be induced by a plentiful application of liquid hen manure once a week. If infested with the red spider immerse them in a tub of water daily, or lay the plants on their sides and shower thoroughly with a sprinkler.

VARIETIES.

Aurora, corolla orange-scarlet, sepals white.

Beauty of Sherwood, corolla cherry, sepals white.

Brilliant, corolla bright scarlet, sepals white. A good winter bloomer.

Carl Holt, corolla crimson, striped with white.

Emperor of Brazil, corolla violet, flaked with rose, sepals scarlet or crimson.

Lady Heytesbury, corolla violet, sepals pure white.

Meteor, bronze leaves, very ornamental.

Mrs. Marshall, corolla carmine, sepals white. Large and fine.

Rose of Castile, corolla blush violet, sepals white.

Speciosa, corolla scarlet, two inches in length, sepals blush.

White Eagle, corolla white, sepals carmine,

HEDERA.

(ENGLISH IVY.)

The words Hedera and Ivy are derived from the Celtic; the former meaning a cord and the latter signifying green—both appropriate for the plant. The Hedera Helix is a native of Europe. On the continent it is called "English Ivy"; in Britain "Irish Ivy"; in this country it is sometimes given one name, and sometimes the other. *Hedera Canariensis,* also called Irish Ivy, is a slightly larger variety. What is known as Italian Ivy is a variety of the Hedera Helix, having smaller leaves and a more branching growth. Many climbers with a hederaceous habit, are falsely called Ivies, as *Senecio Scandens*, know as German Ivy, *Linaria Cymbalaria*, commonly called Coliseum or Kenilworth Ivy, the American or Five-fingered Ivy, and others. These plants deserve their own name. The Hedera has veined, dark shining-green leaves of a waxen appearance, with three, five, and sometimes seven lobes. Its flowers of a greenish hue, produced in umbels, are unimportant ; its beauty consisting in a graceful green cord, studded with unfading leaves. In England and the more southern parts of America, it is hardy, attains an enormous size, and lends an indescribable charm to those stone structures, ruins, trees, or objects about which it twines.

The Hedera is a classical plant. In Egypt it was sacred to Osiris, in Greece to Bacchus, and the Romans twined the Hedera Poetica with laurel in the crowns of their poets. While poet, sculptor and painter have immortalized it, in the modern home it arches window or door, rounds the angles of the room or wreathes the pictures of loved ones with living green, adding to the walls of the humble cottage a richer ornamentation than gilding to the palace.

SOIL AND GENERAL TREATMENT.

The Hedera likes a loam well mixed with leaf-mold and rotted manure.

Make the soil damp but never wet. Liquid manure should be given fortnightly, and a tea of decayed wood occasionally.

Too high a temperature should be avoided; the plant does best in a cool room with a range from 45° to 65°.

It is increased by cuttings which root readily in water, or they may be planted where they are to grow.

As the sustenance of the Ivy is derived largely from its liquid food, it does not need to be re-potted often. Once in two or three years, when growth is arrested by the roots becoming pot-bound, transfer it to larger quarters, using care not to disturb the roots. Changing their location disagrees with them. They should remain in the same place if possible and never be taken out-door. A room darkened too much for Ivy would be unhealthy for human occupants. Sponge their leaves to keep them free from dust, and if infested by slugs wash each leaf with warm soap-suds. Branches placed in a vase or in a bottle behind a picture frame will flourish many months. The plant is of slow growth; two feet a year is fair progress, though under proper treatment it advances much more rapidly. A thrifty plant in five or six years will decorate three sides of a dwelling room.

HELIOTROPE.

The flowers of the Heliotrope are said to turn toward the sun; its name is from *helios,* the sun, and *trope,* to turn. *H. Peruvianum,* the species usually cultivated was discovered by the celebrated Jussieu while botanizing in the Cordilleras in 1757. He sent seeds to Europe and the plant soon became a household treasure. It is esteemed for its delicious fragrance; the Orientals say that its perfumes elevate their souls toward heaven. In California immense bushes of this plant grow wild and bloom luxuriantly the entire year. The Heliotrope adapts itself to the window either as a small plant or a shrub several feet in height, blossoming from the age of a few months onward.

SOIL, PROPAGATION AND GENERAL TREATNENT.

The Heliotrope should have a sandy loam enriched with leaf-mold or a little well-rotted manure.

It requires but a moderate supply of water, a small amount of liquid fertilizer fortnightly, and frequent washings to destroy the red spider.

It wants a warm temperature; 60° at night and 75° to 80° during the day.

Cuttings of the young wood strike readily in wet sand or soil. When rooted they should be transferred to 2½-inch pots, and afterwards be re-potted as their growth may demand. Cuttings rooted in March make blooming plants the following winter.

The Heliotrope may be trained to a trellis and made to fill a window, or in tree form ; the drooping habit of its branches gives it a graceful appearance. Old plants, if in a healthy condition, bloom most. They bear pruning well, though the old branches will produce larger flowers than a new growth. Plants bedded out through the summer attain a rank succulent growth, and should be well pruned when potted for winter. It is well for those who like the Heliotrope to have one or more old plants and a number of small ones in order to have a constant succession of bloom.

Florists' catalogues contain lists of Heliotropes in colors, ranging from almost white to dark violet. As these names vary and may be considered merely fanciful, a list of them is of no great value. Those wishing to purchase may consult catalogues from year to year.

HIBISCUS.

The name Hibiscus is probably derived from *ibis*, a stork, which is said to chew the leaves of some of the species. All the varieties of this extensive genus are very showy flowering plants. *H. Rosa-sinensis*, an evergreen tree in the East Indies, is coming into extensive use for bedding-out in summer. The hardy sorts planted in the garden, and the more tender varieties grown indoor are alike characterized by the size and beautiful color of their flowers.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Hibiscus thrives best in a soil of equal parts loam and peat, or leaf-mold.

It requires a plentiful supply of water and good drainage.

It is easily propagated from cuttings, which root readily in damp sand under glass. The hardy annual varieties merely require to be sown in the open ground, while the tender annuals and biennials should be started in pots and treated as other tender annuals and biennials.

Hibiscus Coccineus speciosus, scarlet green-house shrub, 3 feet high.

H. Liliflorus, scarlet lily-flowered, 3 feet.

H. Rosa-sinensis, single-red.

H. Rosa-sinensis aurantica, double orange.

H. Rosa-sinensis Cooperii, variegated foliage, white, green and pink.

H. Rosa-sinensis fulgidus, flowers five inches in diameter, intense scarlet, paler towards the centre, where on each petal is an oblong blotch of deep crimson.

H. Rosa-sinensis luteus, a beautiful lemon color, marked with lake at the base.

H. Rosa-sinensis rubra-plena, double red.

H. Rosa-sinensis versicolor, striped crimson, rose and white.

HOYA.

(WAX PLANT.)

This plant, named in honor of Thomas Hoy, F. L. S., is a native of tropical Asia and the East Indies. *Hoya Carnosa* is a shrub-like climber with dark shining-green fleshy leaves. It bears clusters of waxen flowers, creamy white, with rose-colored center, and in each may be found a drop of limpid honey.

SOIL AND GENERAL TREATMENT.

The Hoya thrives in a soil of equal parts loam and peat or leaf-mold.

Water moderately when in growth and scantily while at rest.

It should have all the sunlight and heat possible.

Cuttings planted in moist leaf-mold with heat will root freely; even a leaf taken off close to the wood will produce a plant.

A good location for the Hoya is a bracket at the side of or near a window. Like the Hedera it is suitable for training over doors or pictures, and it will be benefited by the warm air of the upper part of the room. The old bloom stalks should not be cut off, as they continue to flower from year to year.

HYACINTH.

The Hyacinthus is said to have received the name of a boy killed by Zephyrus; or of a beautiful Laconian youth beloved by Apollo, who killed him by an unlucky cast of his quoit, and from whose blood this flower sprang. The plant is native of the Levant, has been a favorite for 300 years, and is the most desirable of all bulbs for its adaptability to almost any situation, its diversity of color, fragrance and the amount of bloom it yields. Its waxen lily-like flowers, borne in spikes from four to ten inches long, range from white to dark blue, and contribute all that a flower can to make winter cheerful.

SOIL AND GENERAL TREATMENT.

A sandy, porous soil is best suited to the Hyacinthe ; mix thoroughly equal parts of sandy loam, leaf-mold and well rotted manure.

They should be well and evenly watered.

They like a cool, moist atmosphere, not above 70 degrees.

The Hyacinth is increased by offsets from the bulbs. These offsets become mature flowering-bulbs when four years old. Flower-stalks which appear during their growth should be cut off, that the whole strength of the plant may be thrown into the bulb. As the propagation of Hyacinths is not likely to be attempted by amateurs, an extended account is unnecessary.

Bulbs sold by florists are grown mainly in Holland, and reach this country in September, and should be purchased soon after their arrival. The Hyacinth naturally blooms in the spring, but by proper management their flowers are produced during the winter months. Various methods of thus forcing them into bloom are practiced. The use of pots is simplest and best, and a deep kind is made for this purpose. A small pot answers for a single bulb ; three or four in a larger one produce a fine effect. Set the bulb firmly in the centre of the pot, so only its upper surface appears above the soil. Saturate the earth with water, and set them in a cool, dark cellar a few weeks, where the bulbs will develop roots, though but little foliage. Remove, a few at a time, to a warm, light room, and a succession of bloom can be enjoyed. If the temperature be above 70° they should be changed at night to a cooler room. One or two applications of liquid manure, when first brought forward, will be beneficial.

Hyacinths are flowered in glasses. Many fanciful designs are made for that purpose ; dark colored ones are best. Place the bulb in the crown of a glass filled with rain-water until it nearly reaches but does not touch the base of the bulb. Set them in a cool, dark place, and change the water weekly, or as often as it becomes discolored. When the flower buds appear give the plants a light moist atmosphere, sprinkle frequently and they will soon bloom and may be taken to a warmer room as wanted. One or two drops of aqua ammonia added to the water after the plants are brought to the light will hasten the flowering. Hyacinths will not bloom in perfection in a dry hot room. Their flowers should be cut as soon as they begin to fade.

Hyacinths can be flowered in wet moss, sand, charcoal, etc., by those wishing to gratify curiosity. The future value of bulbs forced otherwise than in soil is destroyed. They bloom well but once, though they will produce inferior flowers for years.

VARIETIES.

All Hyacinths are seedlings or hybrids of the old *H. Orientalis*, and the varieties are innumerable. Those wishing bulbs should consult the catalogue of a dealer; that of James Vick, Rochester, N. Y., has always an extensive list, and no one imports better bulbs. Eight shades each of the single and double, some low and some tall growing, are catalogued. The single varieties are best for winter forcing; the *Roman White* for early blooming. Its bells are small, pure white, very fragrant and each bulb produces from three to five spikes. They may be grown in three-inch pots and will bloom by the first of December if started in September.

The brilliant little blue Amethyst Hyacinth of Europe has flowers small, drooping and exquisitely fragrant, and is perfectly hardy.

HYDRANGEA.

The Hydrangea is named from *hydor*, water, and *aggeion*, a vessel; the capsule of some of the species has been compared to a cup. The plant is a dwarf shrub, introduced into cultivation in 1736 from Virginia. Though blooming only in summer it is an old favorite, on account of the great beauty of its flowers as well as its hardiness.

SOIL AND GENERAL TREATMENT.

A soil of loam enriched with leaf-mold and manure is suitable.

While growing they should have a plentiful supply of water, but none while resting.

Ripened cuttings root freely, if planted in any sheltered situation. Flowers are produced on the shoots of the previous year, and are larger on young plants than those three or more years old. Most varieties require shade, as the hot sun injures their foliage. They may be grown in a tub and wintered in the cellar. The color of the pink varieties will become blue if iron filings are mixed with the soil.

VARIETIES.

Hydrangea Hortensis, the old hardy variety, growing about two feet in height, flowers pink, changing to bluish purple.

H. Imperatrice Eugenie, large heads of white flowers, tinted blue and pale rose.

H. Japonica Variegata, a hardy plant, yet excellent for indoors during the summer. The leaves, deep green, marked with white, burn on full exposure to our hot mid-summer suns.

H. Lindleyii, a new species from Japan, with small heads of bright pink flowers.

H. Otaska, similar in color to the common *H. Hortensis*, but much larger, flowering when the plants are quite small, in panicles of rosy-carmine flowers.

H. Paniculata grandiflora, flowers in large white panicles or trusses six inches in length. The plant attains a height and breadth of four or five feet, the flowers slightly droop. Blooms from August to November.

IPOMŒA.

This plant derives its name from *ips*, bindweed, and *homoios*, similar ; alluding to the twining habit of the plant. The Ipomœa is native of all warm climates, a few extending into North America. It belongs to the same family and is often called Morning Glory. Some of the varieties of Ipomœa are very large and excel the best Convolvulus ; others like the *Ipomœa Quamoclit*, (Cypress Vine), have small bright colored flowers with a dainty fragrance. They are generally more delicate than the Convolvulus, more desirable for house culture, and some are eminently beautiful, combining marvellously brilliant colors with white margins.

For the general treatment of Ipomœa, see that of Convolvulus.

VARIETIES.

Ipomœa Coccinea, or Star Ipomœa, small scarlet flowers.

I. Bona Nox, flowers large white.

I. Grandiflora superba, fine large flowers, sky-blue with broad border of white.

I. Limbata elegantissima, large flowers, mazarine blue with broad border of white.

I. Quamoclit, or Cypress Vine, tender climber, flowers small, elegant and striking, foliage beautiful.

IRIS.

The Iris or Flowering Flag, as it is sometimes called, or *Fleur de Lis* of the French, is a well-known family of hardy border plants. Linnæus named it from *iris*, the eye; alluding to the variety and beauty of the colors of its flowers. The Iris is found in damp regions in every quarter of the globe, and has been cultivated in gardens more than three hundred years. The flowers of some of the species have a rich fragrance and rare combination of colors. Of the many hundred varieties the bulbous-rooted are the only ones that should be grown in pots.

SOIL AND GENERAL TREATMENT.

The Iris thrives best in a soil of sandy loam and leaf-mold.

Water them freely when in full growth, and very little at other times.

They are increased by seeds, or offsets from the roots. For winter blooming three or four bulbs may be planted in a six-inch pot in September or October, and kept in a cold frame or cellar until they are wanted for flowering, when they may be brought to the window, the varieties which bloom earliest first. Water them moderately and increase the supply as growth advances. After blooming they will require no water until October, when they should be re-potted in fresh soil.

VARIETIES.

Iris Pavonia, or Peacock Iris, well adapted for pots, the bulbs are no larger than peas.

I. Persica, possessing a delicious fragrance equal to that of the violet; the colors white, blue, purple and violet.

I. Susiana, the most desirable variety for winter, as it blooms earliest. This variety and *I. Persica* will bloom as the Hyacinth, in water.

The variety of the Spanish Iris bloom later than the foregoing.

IXIAS.

The Ixias, natives of the Cape of Good Hope, are bulbous plants of graceful habit, and flowers of almost every conceivable shade of color. Many varieties have three or more diverse colors in a single flower.

SOIL AND GENERAL TREATMENT.

The Ixias thrive in a soil composed of sandy loam and peat, or leaf-mold, with a little well-rotted manure

Water should be given freely when in growth and withheld during the season of rest.

The temperature best suited to them is about 40° at night and 60° by day.

They are mainly increased from offsets, which are freely produced. Plants can also be raised from seed, which should be sown about the first of October. When they have had one year's growth repot in fresh soil and treat as old bulbs. They will bloom the third year, if properly managed. Old bulbs die and leave a number of offsets, which should be separated when re-potted, and they will soon make flowering plants.

Bulbs for winter blooming should be planted anew in November, shaking off the old soil and putting three or more bulbs in a four-inch pot having good drainage. Set them in a cool place until growth commences, and then in the window, as near the glass as possible, taking care not to give them too high a temperature; forcing diminishes the size and number of the flowers. In January the flower stalks will appear; they should be tied to sticks as they are frail and slender. After blooming the leaves turn yellow, indicating that the plants need rest. Dry the bulbs off gradually and store them in a dry place. The varieties should not be mixed; the bulbs in a dry state are very similar and each pot should be labeled.

VARIETIES.

Ixia, Alba Oculata, color white, shading to yellow with a dark chocolate eye.

I. Capitata, flowers white and black.

I. Conchiflora, a strikingly beautiful variety, with long buff-colored flowers.

I. Crispa, flowers blue.

I. Erecta, white or flesh color.

I. Kermisiana, vermilion.

I. Leucantha, white.

I. Viridiflora, leaves slender, flower spike long, producing from ten to thirty flowers; the petals are of a peculiar vivid green, black at the base, stamens large and yellow, a very fine free-bloomer.

JASMINE.

The name Jasmium is derived, according to Linnaeus from *ia*, a violet, and *osme*, smell; others assert that it is from *ysmym*, the Arabic name of the plant. It is a native of the East Indies and S. Europe. It is a climbing shrub with neat foliage and white and yellow flowers of exquisite fragrance, due to the essential oil which pervades them, and for which some of the species are extensively cultivated. They usually bloom from February to June; some varieties from the East Indies bloom the year round.

SOIL, AND GENERAL TREATMENT.

The Jasmine does well in soil of equal parts of sandy loam and peat or leaf-mold.

They should have a plentiful supply of water.

They thrive in the usual temperature of living rooms.

Cuttings of the ripened wood root freely in sand or soil under glass.

They are sometimes infested with scale, which may be removed by frequent washings. They should be trained to a trellis and the branches allowed to droop.

VARIETIES.

Jasmine Grandiflorum, or Catalonian Jasmine, a winter-flowering variety, blooming constantly from October to May; flowers pure white, deliciously fragrant, a species cultivated for the essential oil.

J. Odoratissimum, yellow flowers.

Revolutum, a rapid grower, attaining a height of ten feet; flowers yellow, very fragrant.

LACHENALIA.

The Lachenalia, named in honor of W. de la Chenal, a botanical author, is a native of the Cape of Good Hope. It is a genus of bulbous plants seldom attaining a foot in height, with foliage variegated with black. The flowers are pendulous high-colored tubes produced in upright spikes. They bear forcing remarkably well, and may be made to flower at almost any season.

SOIL, TREATMENT AND VARIETIES.

The soil best adapted to the growth of these plants is a mixture of peat, or leaf-mold and sand.

Give them plenty of water while in growth but none during the season of rest.

They thrive in a temperature of 55 to 65 or 70 degrees.

They may be increased by offsets of the bulbs, or by seeds. Pot the bulbs in October. give them the ordinary care, growing them as near the glass as possible, and they will bloom in January and February.

Lachenalia fragrens, flowers white and red.
L. Pendula, flowers white and red.
L. Quadricolor, flowers red, yellow and purple.

LANTANA.

Lantana is an ancient name of *Viburnum*, to which its foliage bears a resemblance. It belongs to the same natural order as the Verbena. The

Lantana is a native of Mexico, the West Indies and South America, and was introduced into cultivation in 1692. It is a rapid grower forming a small bushy shrub and producing compact heads of flowers of different and changing hues in great abundance. Its curious mingling of colors invest the plant with peculiar interest—white, crimson, scarlet, orange and yellow sometimes appearing in the same flower.

SOIL, PROPAGATION AND GENERAL TREATMENT.

It thrives in a sandy loam enriched with a little manure.

Give plenty of water while in flower.

It should have rather a high temperature and a sunny location to bloom freely.

The Lantana is easily propagated from seeds or cuttings ; the latter root easily in water or sand.

This plant bears pruning freely and may be trained in almost any shape. It should be re-potted every spring and cut back freely. Towards fall pinch off the buds and give less water to harden the wood. Its growth and bloom is accelerated by a weekly application of liquid manure. Wash the foliage frequently to keep off insects. Plants too large for the window may be wintered in a damp, dark cellar without water.

VARIETIES.

Lantana, alba grandiflora, large white flower.
L. Alba lutea grandiblora, white yellow centre.
L. Alba perfecta, pure white, very fine.

L, *Aurantiaca,* bright orange.
L. *Clotilda*, pink, yellow centre.
L. *Delicatissima*, deep lilac.
L. *Eugenie,* rose and white
L. *Flava Lilacina*, lilac and orange.
L. *Grand Sultan*, purple and yellow.
L. *Hendersonii*, rose, center white.
L. *King of Roses*, scarlet and orange.
L. *Lina Etinger*, straw color; dwarf and profuse bloomer.
L. *Marcella*, lilac rose, changing to yellow.
L. *Monfeck*, crimson; compact habit.
L. *Raphael*, purple, orange and rose.
L. *Triumph*, dark orange.

LIBONIA FLORIBUNDA.

The Libonia is a neat growing shrub with shining green foliage, attains a height and breadth of twelve or fifteen inches and bears flowers an inch in length, scarlet orange at the base shading into deep yellow at the top. It is a valuable winter house plant as it blooms profusely from December to May.

SOIL AND GENERAL TREATMENT.

The Libonia thrives in a soil composed of three parts sandy loam and one of manure.

It requires a moderate supply of water.

A temperature of from 55° to 70° suits it best, though it endures a greater variation.

It is easily increased by cuttings, which root readily in damp sand under glass.

The plant will survive much ill treatment and requires little care. An occasional washing to freshen and free its foliage from insects is beneficial.

LINARIA CYMBALARIA.

(COLISEUM IVY.)

The genus Linaria is named from the resemblance of the leaves to *linum*, flax. The little trailing Linaria Cymbalaria, a native of England, is said to grow on the ruins of the Roman coliseum, hence its common name. It has slender purplish stems and small, bright-green, five-lobed leaves with purple linings, and minute lilac, white, and yellow-tinted flowers, somewhat like those of the *Antirrhinum* or Snap Dragon, to which it is allied. It is a rapid grower and will produce hundreds of trailing sprays four or five feet in length in a few months, completely covering a vase or hanging basket.

SOIL AND GENERAL TREATMENT.

The Linaria thrives in a soil of equal parts loam and leaf-mold.

A moderate supply of water with good drainage is essential.

It likes a temperature from 60° to 70° and grows well in living-rooms.

It is increased by seeds or cuttings. Seeds self-sow by falling in surrounding pots, and cuttings strike readily in damp sand or soil. The foliage is injured by the noon-day sun. It likes east or west windows and grows best in partial shade. It is not troubled with insects and requires little care.

LOBELIA.

This plant named in honor of Mathew Lobel, physican and botanist to James I., and author, is extensively used for bedding, edging, or rockeries. The genus is found in all countries but the varieties most in cultivation came originally from the Cape of Good Hope. The Lobelia has graceful foliage, a profusion of delicate flowers usually ranging from intense blue to white, and is suitable for hanging baskets.

SOIL GENERAL TREATMENT AND VARIETIES.

Lobelia thrives in a sandy loam, enriched with leaf-mold or rotted manure.

It requires a plentiful supply of water and rather a high temperature.

It is usually increased by seeds which may be planted into pots in June and covered but slightly as they are very small. The buds should be pinched off through the fall, and the strength of the plant-given to growth.

Lobelia Erinus, in varieties, best for bedding.

L. Speciosa, fine for pots yielding a long succession of intense azure-blue flowers, with darker foliage than the others.

L. Gracilis, a delicate growing variety, dark blue ; fine for hanging baskets

L. Gracilis Alba, white.

L. Gracilis Compacta, blue and white ; fine variety.

MAHERNIA.

The name of this plant, an anagram of *Hermannia*, signifies affinity. Mahernia is a native of the Cape of Good Hope. It is a valuable constant blooming plant, bearing a profusion of bell-shaped lemon-colored flowers possessing a fragrance not unlike that of the Lily of the Valley.

SOIL, GENERAL TREATMENT AND VARIETIES.

Mahernia thrives in a sandy loam enriched with a little manure.

It should have a plentiful supply of water but not enough to make the soil sodden.

The plant is easily increased by young cuttings taken at a joint, and started in damp sand or soil under glass. Transplant them to small pots when the roots are half an inch long.

It has a tendency to grow straggling which can be restrained somewhat by tying the stem to an upright support and frequently pinching off the too luxuriant growth. Give it an application of liquid fertilizer once a week.

Mahernia odorata, the variety most commonly grown, flowers yellow, exquisitely fragrant.

MATHIOLA.

(STOCK.)

This plant named in honor of Mathiola, a botanic author, is a native of England and South Europe. Stock is a valuable garden plant. Its good habit, fine foliage, beautiful flowers of almost every desirable and delicate tint, and delicious fragrance fit it also for the window.

SOIL, PROPAGATION AND GENERAL TREATMENT.

Stocks are best grown in sandy loam enriched with leaf-mold and a little manure.

They should have a regular and plentiful supply of water, and if possible a moist atmosphere.

They like rather a cool temperature but endure the ordinary air of living-rooms.

The double varieties give no seed except through treatment known to skilful florists. They may be increased by cuttings rooted in damp sand under glass. The seeds of single-flowering plants that grow near many double ones will sometimes produce double-flowering plants.

The biennial or Brompton stocks may be grown in pots from seeds sown in July and August and will bloom late in the following winter, if not kept too hot and dry, after which they may be transferred to the garden for summer flowering, and removed to the house in the fall. They will last a number of years if protected from frost. If not wanted for winter blooming they may be kept in a cellar till March when thay may be brought forward and will soon bloom,

VARIETIES.

Brompton Stock, best suited for pot culture, a biennial, of larger growth than the annual, sometimes bearing spikes of compact flowers nearly a foot in length.

Emperor, a hybrid between the Brompton and annual.

Intermediate Stock, blooms late in fall from seed sown in spring, and early in spring from seed sown in July and August.

Ten-weeks-stock, (German) is an annual valuable for long continuance in bloom and vigorous habit.

MAURANDYA.

The Maurandia, named in honor of Dr. Maurandy, professor of botany at Carthagena, is native of Mexico. It is a delicate twining plant attaining a height of five feet, bearing bell-shaped flowers in shades of blue, white and mauve. Its graceful habit, abundant foliage, and rapid growth fit it admirably for hanging baskets or a trellis.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Maurandya, thrives in a light loam enriched with leaf-mold.

It requires a plentiful supply of water, and does well in the ordinary temperature of living-rooms.

The plant grows readily from seeds or cuttings. The latter should be started in damp sand under glass in June to make strong plants by fall. Plant seed in light rich soil in June. Give plenty of sun and when flower buds appear apply liquid fertilizer once a week till blooming is past. Shower or wash them frequently to keep off spiders.

Maurandya Barclayana, an exceedingly pretty climber will cover a small trellis in two or three months; flowers blue and white.

M. Barclayana purpurea grandiflora, dark blue.

MESEMBRYANTHEMUM.

This plant named from *mesembria*, mid-day, and *anthemon*, a flower, is an extensive genus mostly natives of the Cape of Good Hope. They are succulent plants, easily cultivated, adapted for hanging baskets or vases. The varieties most common are the Ice Plant and Dew Plant. The Ice-plant has thick fleshy leaves and stems, covered with little shining globules, resembling ice. The flowers are small white and unimportant. The Dew-plant has a smooth light-green, dewy-looking leaf, a graceful slender habit, and a pretty pink flower. Both are drooping plants.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Mesembryanthemum thrives in a light sandy loam, needs plenty of sunshine and water with but ordinary care.

It is increased by seeds or cuttings. The latter should be allowed to dry a little after planting, before watering. It flowers most profusely in a hot dry atmosphere doing better in hanging baskets than pots and fully exposed to the sun.

Mesembryanthemum auranticum. orange.

M. Cordifolium, *M. Deltoidum* and *M. Glaucum*, are pink.

M. Blandum and *M.Nitidum*, are white.

M. Cordifolium Variegatum, leaves white, and green; purple flowers; used extensively in public grounds about London.

M. Crystallinum, has a creeping stem about a foot in length which with the leaves have the appearance of being covered with dew or frost, hence its common name.

MIMOSA.

(SENSITIVE PLANT.)

The Mimosa is named from *mimos*, a mimic; the leaves of many of the species seem to sport with the hand that touches them. *M. Pudica*, the species most sensitive, is a native of Brazil. It is often cultivated in the open border, or in pots, for the interest excited by the singularly sensitive nature of the leaves, which if touched at once begin slowly to close, and if touched near the base of a leaf stalk not only will the leaflets close but the leaf stalk droop as if broken

SOIL AND GENERAL TREATMENT.

The Mimosa likes a sandy loam and leaf-mold soil.

It thrives with ordinary care as to water and temperature.

It is increased by seeds, or cuttings of the young wood rooted in sand under glass. Plants for winter may be started in spring and repotted in fall.

MIMULUS.

From its gaping corolla this plant has received the common name of Monkey Flower; the word Mimulus is from *mimo*, an ape or actor. It is a beautiful and tender plant with almost transparent branches, bearing gorgeous flowers with gold or white ground mottled with maroon and crimson, a great addition to any collection.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Mimulus thrives in garden soil enriched with leaf-mold.

It requires plenty of water, often needs it twice a day and thrives in the usual atmosphere of the house.

It is increased by seeds, divisions of the roots, or by cuttings which may be rooted in water, or soil under glass.

Mimulus Luteus, comprises numerous varieties, with white, sulphur and yellow grounds, spotted with crimson, scarlet, pink etc. A double variety called Hose-upon-hose, is very remarkable.

Mimulus moschatus, or Musk Plant grown for the odor of musk in its leaves; flowers yellow.

MYRSIPHYLLUM ASPARAGOIDES.

(SMILAX.)

This twining plant named from *myrsine* a myrtle, and *phyllon*, a leaf; alluding to the resemblance of the leaves, is a native of the Cape of Good Hope. It is commonly known as Smilax, and is extensively grown by florists for decorative purposes. It has a sinuous stem with alternating glossy green leaves, giving it a remarkably graceful appearance. It will remain fresh hours after it has been cut, and this unusual quality makes it highly valuable for ornamenting rooms, tables, or dresses, and it is by many considered indispensable for decorations on festive occasions.

SOIL AND GENERAL TREATMENT.

Smilax thrives in a mixture of loam and leaf-mold.

It should be watered carefully, giving but little when the plants are young, slightly increasing the supply as growth advances, and withholding it gradually at maturity.

It endures the ordinary house temperature, and does not require a very sunny location, but will thrive in a partly shaded window or on a bracket.

Smilax is propagated by off-sets from the parent bulb, or from seed.

Pot the bulbs early in September and water very little until growth commences. Give them plenty of fresh air, but protect them from cold draughts when young, as they are very tender. The leaves will turn yellow when nature indicates that the plant needs rest; let the bulbs gradually dry off and put them away in a cool place until September, then repot in fresh soil. Give them liquid manure occasionally. They are often injured by the red spider, the remedy for which is frequent immersions or showerings; if neither of these are convenient dust them with red pepper. The vine requires some support, strings or threads will answer the purpose.

MYRTUS.

(MYRTLE.)

The Myrtle is a hard wood evergreen shrub, possessing an agreeable fragrance, a native of South Europe, New Holland and China. The name is from *myron*, perfume. It was considered by the ancients sacred to Venus. The brows of bloodless victors were adorned with myrtle wreaths, and at Athens it was an emblem of civic authority. It is used in religious ceremonies by the Jews. Its elegant form and fragrance make it desirable for the house.

SOIL, GENERAL TREATMENT AND VARIETIES.

The myrtle is suited with a sandy loam enriched with one-fourth leaf-mold.

Water moderately and wash the foliage frequently.

It is increased by cuttings which if not too ripe root freely either in sand or soil.

The myrtle does not require large pots, likes plenty of sun and air during the growing season, but flourishes well in almost any situation. If put out door in summer it should have a shady location.

Myrtus communis, the common parlor myrtle of which there are several varieties ; small, large, or variegated leaved, and single and double-flowered.

M. tennifolia, a fine plant from New Holland.

M. tomentosa, of China, purple flowers changing to white, several shades on the same plant at once ; does not endure the hot sun.

NARCISSUS.

The Narcissus is named from *narke*, stupor ; on account of the effect produced by the smell upon the nerves. In mythology Narcissus was a beautiful youth enamored of his own image as seen in a fountain, who was changed into the flower thereafter called by his name. The Narcissus is an old and popular class of beautiful flowers ; some of the species are highly fragrant. They include the well-known Daffodil and Jonquil. Most of the varieties are hardy, and should be planted in autumn and may remain in the ground a number of years. When they become matted together a division of the roots is necessary. The most beautiful class of this family is the *Polyanthus Narcissus* which is not hardy in New England, but is unsurpassed for flowering in the house. They have glossy or leek-like leaves ; produce flowers in clusters of from five to twenty, ranging from pure white to deep orange; are very fragrant and continue in perfection a long time. The Jonquils are also desirable for winter flowering.

SOIL AND GENERAL TREATMENT.

The Narcissus wants a light rich soil of loam, leaf-mold and a little sand.

They require plenty of water when in growth and flower ; less after the blooming season is past.

They are increased by offsets from the bulbs.

To force the Narcissus for winter bloom, plant the bulbs in September, one in a pot not less than five inches across, and keep them at a low temperature until Christmas, when they will be well rooted and ready to flower rapidly. After blooming they should continue growth in the pots and if convenient be plunged during summer in the garden They should not be disturbed until the bulbs and roots completely fill the pots and growth has stopped; then remove the outside bulbs leaving the centre in a solid mass, and repot for the next season.

VARIETIES OF NARCISSUS POLYANTHUS.

Bazelman Major, fine white.
Double Roman, white and yellow, fragrant.
Gloriosum superbum, white with deep orange cup.
Grand Monarque, white with yellow cup.
Grand Soliel d'Or, bright yellow, deep orange cup.
Grootverst, white.
Newton, yellow and orange.
Staten General, handsome lemon.

VARIETIES OF NARCISSUS JONQUILLA.

Jonquills, natives of Spain, large double and single, blossoms yellow and fragrant, both varieties very desirable for forcing; three or four can be grown in a small pot and they may be bloomed any month of the year.

NERIUM OLEANDER.

This genus is named from *neros*, humid; alluding to the habitat of the plants. Oleander is derived from words literally signifying rose-tree. The plant was introduced into cultivation from South Europe, in 1596. It is common on the banks of the Jordan and throughout Palestine, in moist situations. The Oleander is too well known to need description. It is easily cultivated and has handsome foliage. It will bloom most of the year if properly treated, and when resplendent with rose-colored, white or variegated blossoms it is unsurpassed, being perhaps the most suitable of all hard wood plants for the window.

SOIL, WATERING AND PROPAGATION.

A light, rich soil, as equal parts of garden loam and leaf-mold suits it.

The Oleander wants an abundance of water when in growth or bloom ; but little during its season of rest and if wintered in the cellar none at all.

It prefers a moist atmosphere of from 50° to 70°, yet will endure extreme heat.

It is easily increased by cuttings of the young wood which root in any soil if kept moist. They may be most conveniently started in vials of water. Cut the slips just below the fourth leaf joint, remove the lower leaves without injuring the bark, and place about one inch in the water. Roots will appear in from five to ten weeks. After an abundance have formed set out the plant in a four-inch pot, and place it in a moist, shaded location for a fortnight when it may be set in the sun and watered freely. If the slip was severed when in the proper condition the plant will bloom in a few months. Slips made from a growing plant will root and bloom sooner than from one in a dormant state.

GENERAL TREATMENT.

The Oleander bears pruning freely. To prevent an injurious flow of sap sear the wounded part with a hot iron. It thrives in a comparatively small pot. For a plant four feet in height a tub nine inches in diameter and the same depth is ample. To rest the plant through the summer, and prepare it for winter flowering, sink the pot in the open ground and give it but sufficient water to keep it alive. About the first of September, shift it to a tub or pot two inches larger, not disturbing the old soil, and water thoroughly. As soon as growth commences place the plant on a sunny porch, and give weekly applications of liquid fertilizer. Remove before frost comes, to a cool room, that the change indoors may not be too abrupt. A south window is best until the buds begin to open, after which the blossoms will remain in perfection longer in a west window, than if exposed to the noonday sun. Each flower should remain perfect two weeks. The peduncle or flower-stalk should not be cut away as long as there is a bud at the end. These stems often continue to bear blossoms a year or more. The buds are apt to blast in the hot dry air of rooms. Frequent sprinkling, or immersing them daily in warm water will in part prevent this. Showering is always beneficial to them. The Oleander in its native region endures the heat and drouth of an eastern summer, but blossoms in the wet season when the rivers overflow their banks and its roots are immersed in water. When forcing for bloom they can scarcely be given too much water if supplied with good drainage, and it may be applied quite hot. Wash plants infested with slugs frequently in warm soap-suds.

OXALIS.

The Oxalis, or Wood Sorrel, named from *oxys*, acid ; in allusion to the acid taste of the leaves, is an extensive genus embracing annuals, bulbous and tuberous rooted plants and shrubs. They are found in all countries. The best known and most beautiful of the germs is *Oxalis versicolor*, a winter flowering bulb, very easy to cultivate, bearing clusters of delicate little white, yellow, rose and crimson blossoms in great profusion and well adapted for hanging baskets.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Oxalis should have a soil of equal parts sandy loam and leaf-mold.

Like all bulbs they need plenty of water while in growth.

They thrive in the high temperature of living rooms and like a sunny window.

They are usually increased by offsets.

The bulbs of the Oxalis, which are quite small should be planted in early fall, six or seven in a pot or hanging basket. Contrasting colors placed together have a pleasing effect. As soon as growth commences, water freely, and by December a mass of foliage and flowers will be produced. They will continue to bloom until June when they should be dried off and given three months complete rest either by turning their pots on their sides or removing the bulbs from the earth to a dark dry place. The Oxalis is likely to be infested with the red spider and should be occasionally immersed in soap suds.

The best varieties for the window garden are *Oxalis canescens*, purple, *O. cuneifolia*, white, *O. flava*, yellow, and *O. multiflora*, lilac.

PASSIFLORA.

(PASSION FLOWER.)

The Passiflora is named from *passio*, passion, and *flos*, flower ; the several parts of the flower are compared to the instruments of the Saviour's passion. It has become an emblem in the Roman Church. The plant is a climbing vine of rapid growth, native of Brazil where it reaches a height of thirty feet with a stem three or four inches thick. Its abundant foliage, handsome palmate leaves, large and singularly beautiful flowers renders it an effective ornamental climber for bay windows or the conservatory.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Passiflora thrives in a soil of loam and leaf-mold enriched with a little well-rotted manure.

It requires only a small supply of water and does best in a rather dry soil.

It should have a temperature of from 60 to 75 degrees and a sunny window.

The Passiflora is easily increased by cuttings rooted in damp sand.

Cuttings started in May or June make good plants the following winter. They may be planted in a dry sunny location in the open ground and if carefully taken up in the fall, kept shaded a few days and gradually accustomed to the house, will make fine window climbers. Train them upon strings or a trellis. If a plant is so large that room cannot be spared it in the window, winter it in the cellar and cut back the old growth well before setting out in the spring. The roots of large plants require plenty of room and are best grown in a window box. The foliage is not troubled with insects.

Passiflora alata, blue and white.

P. Cærulea, blue, and *P. pfordti*, purple.

P. Tacsonia, exoniensis, brilliant rose pink.

P. Trifasciata, varigated leaves having a broad band of deep rose color through the centre.

P. Volxemi, crimson and white.

PELARGONIUM OR GERANIUM.

Pelargonium from *pelargos*, a stork, and Geranium from *geranos*, a crane; their capsules may be fancied to resemble the head and beak of those birds, are names given to genera of plants of the order *Geraniaceæ*. As florists disregard the botanical distinctions between them, and most plants belonging to the genus Pelargonium are generally known as Geranium we will follow the common usage of names. They are principally native of the Cape of good Hope. By artificial hybridization, or cutting out the anthers of the plant intended for the female parent before they burst, and impregnating the stigmas with the pollen of another an endless variety of Geraniums have been produced. They are to be seen in some form in every collection of plants. A New England lady with only the ordinary window room of a country home has cultivated over a hundred varieties.

The Pelargonium or Geranium in cultivation may be divided into four classes having a marked difference in their appearance or habit of growth, and in order to simplify the subject we will group them as follows :—

The Zonales, including the Silver-leaved, Bronze-leaved, Tricolor, and Lilliputian varieties both single and double; the most extensively cultivated class. The beautiful foliage of many of these is a bouquet in itself, they are also constant bloomers, and may be termed the "marked-foliage" class.

The *Sweet-scented* varieties, as the Rose, Lemon, etc. ; grown for foliage rather than flowers.

Pelargoniums, distinguished for large richly colored flowers, in every shade of carmine, orange, crimson, blackish-maroon, and white, disposed and blended in so varied a manner as to defy description. Though not constant bloomers like the Zonales, the wonderful beauty and richness of their flowers renders them highly desirable.

Ivy-leaved Geraniums, of a climbing or trailing habit, forming a distinct class, cultivated both for beauty of foliage and flowers.

SOIL, WATERING, TEMPERATURE AND PROPAGATION OF THE ZONALE CLASS.

They flourish in a strong sandy loam enriched with leaf-mold or well rotted manure.

They require a moderate and regular supply of water. Good drainage should be provided.

The temperature best suited to them is from 45° at night to 65° during the day, though they flourish in the hot air of living rooms.

They are increased by seeds or cuttings. Seeds may be sown on a light soil, thinly covered with leaf-mold and germinated under glass. Remove the young plants to small pots as soon as they have a fifth or sixth leaf, and shift to larger ones as often as the roots fill the pots. Cuttings root readily in sand, and somewhat less easily in soil, unprotected by glass. They require from two to six weeks according to the condition of the wood, that sufficiently hardened to snap when broken rooting first. When the roots are well started set the cuttings in small pots. The varieties which are cultivated for flowers should be shifted to larger ones only as they become pot bound. Those grown for foliage may have larger pots and be supplied with fresh soil before they fill them with roots.

GENERAL TREATMENT OF THE ZONALE CLASS.

Young plants bloom freest and are most suitable for the window; a succession should be constantly provided. Cuttings started in June will make fine plants for the following winter. They should not be allowed to bloom until November; from that time they will flower constantly if not placed in too large pots. Supplied with too much over-rich soil they run to foliage. As little earth as possible and a small amount of liquid hen-manure applied once in two weeks will force blooming. They are rarely troubled with insects and require very little care except an occasional washing or showering to remove dust.

If old plants are to be used for the window, they should be pruned closely and given a soil generously enriched with manure. Use rather small pots, as they will not bloom freely in a large quantity of earth. Plants too large for the window may be wintered in a dry cellar. Shake off the earth and hang them up by the roots. They should be thoroughly pruned when set out in the spring, and will make as fine bedding-out plants, as those which have been growing through the winter.

There are a host of named varieties of Geraniums and the number is constantly increasing; it is therefore useless to attempt an extended list. A few which are known to be fine are given below; there are hundreds of others which equal or excel them.

VARIETIES OF ZONALES CULTIVATED FOR FLOWERS.

Scarlet. General Grant; King of Scarlets; Jean Sisley, white eye; Father Ignatius; Sir John Moore.

Salmon. Bertha Fouche; Md. Soussett, shaded white; Prince of Wales, tipped white; Amelia Grisseau, margined white; Chas Reust, shaded white; Mrs. Geo. Smith; Aurantia Striata.

Pink. King of Pinks, deep pink; Queen of Pinks, pale pink; Master Christine; Maid of Kent; Md. De Bertrand.

White. Theresa, carmine eye; Snowflake, pure white; Md. Wherle, pink eye, a favorite; Emily Vauchier, red anthers.

VARIETIES OF DOUBLE ZONALE GERANIUMS.

Scarlet. Jewell, L'Annee Terrible, Asteroid, Andrew Henderson, Lativonia, La Promise, La Vesuve, Princess Teck, Victor Lemoine.

Crimson. Refulgens, La Vengeur, Le Negre, Emilio Castelar.

Pink. Basalisk, Admiration, Emily Lemoine, Marie Lemoine.

White. Aline Sisley, tinged carmine; George Sand an improvement on Aline Sisley and the nearest approach to white.

GERANIUMS CULTIVATED FOR FOLIAGE.

Black Douglas, foliage yellow marked with a broad chocolate zone much resembling Pres. McMahon in its coloring, but its flowers are bright pink rendering it quite distinct.

Distinction, a new variety, marked near the edge of the leaf with a very narrow zone of deep black.

Happy Thought, large yellow blotch in the centre of the leaf with an outer band of green at the margin; flowers rich magenta rose.

Marshal McMahon, unequaled by any Geranium of its class ground color of the leaves golden yellow, marked with a deep chocolate ring.

Mountain of Snow, one of the whitest of silver-leaved varieties. The centre of the leaf is bright green, the outer margin marked with silvery white, should not be exposed to the noonday sun, grows well in north windows.

Mrs. Pollock, a type of the class of Golden Tricolor Geraniums, which cannot be excelled in beauty of foliage. The ground color of the leaf is deep green, with a zone of bronze crimson, the margin of which is tinted with scarlet; the flowers are dark scarlet in good sized trusses. The leaves are much used for bouquets in winter.

GENERAL TREATMENT AND VARIETIES OF THE SWEET-SCENTED GERANIUMS.

The Sweet-Scented Pelargoniums or Geraniums require the same soil, watering and temperature as the Zonales. Being cultivated for foliage only should be given larger pots. They are sure to be infested with aphis, the remedy for which is persistent fumigating.

The principal Scented Geraniums are *Apple, Citron, Lemon, Nutmeg, Penneroyal* and *Rose,* whose names indicate their fragrance. The *Skeleton-Leaved* varieties are especially beautiful and valuable for bouquet making or decorative purposes.

Variegated Rose-scented, leaves fringed with creamy white, sometimes assuming a purplish tinge.

TREATMENT OF THE PELARGONIUM.

The Pelargoniums that are commonly known as such require a richer soil and larger pots than the Zonales but thrive with the same treatment as to watering and temperature. They are propagated in the same manner, though cuttings root with more difficulty. They should be kept in pots and under glass through the summer, as they are injured by continued rains. They should be changed to larger pots as often as the roots begin to mat around the sides. The shoots should be pinched back until the flower buds begin to form, when they should be placed near the glass, and never allowed to wilt. They are not constant bloomers like the Zonales though often flowering from March or April on through the summer. They may be guarded against aphis by frequent fumigations.

The varieties of this class are so extensive, and the markings of the flowers so varied and blended that it is impossible to describe them or give a list of named sorts of any value.

TREATMENT AND VARIETIES OF THE IVY-LEAVED GERANIUM.

The same soil, watering and general treatment given for the Zonales suits the Ivy-leaved Geraniums. If a large growth of foliage is desired the roots should not be restricted. This class have been hybridized with the Zonales resulting in variegating the leaves with yellow, pink, and white, and in an approach to those of the Zonales in size and color of the flowers. Their foliage is of sufficient beauty to warrant their cultivation, yet their value is greatly enhanced by the beauty and profusion of their flowers through the spring and summer months.

Carmine. Diadem; National, veined with white.

Pink. Floribunda, Princess Alexandra.

White. Bridal Wreath; Innocence, Butterfly; spotted with rose; Speciosus, violet spotted.

King Albert, a novelty, having the same habit as the single varieties, but flowers very double, a beautiful mauve color, lightly striped towards the centre with carmine.

PETUNIA.

The Brazilian name for tobacco, *petun*, is applied to Petunia because of its affinity for *nicotiana*, the popular narcotic. The white Petunia was found in 1823, by a botanical explorer, in Buenos Ayres, and a few years later a purple one was discovered. From these plain single plants have sprung many beautifully variegated varieties both single and double, marked with stripes and blotches of crimson. The brilliancy and variety of colors, duration and profusion of bloom makes the Petunia a showy plant, valuable for the window. Some of the varieties have a strong and agreeable fragrance.

SOIL, WATERING AND GENERAL TREATMENT.

The Petunia thrives in a mixture of sandy loam and vegetable mold.

They require but a moderate supply of water, and will grow in a soil so dry it would cause most plants to wither.

The ordinary temperature of the house suits them ; they require plenty of sunshine.

They are propagated from seeds or cuttings. The grandiflora varieties bear but few seeds and these are obtained with difficulty. The double varieties give no seed, except those produced by fertilizing single flowers with the pollen of the double. The single small-flowering varieties seed freely and self sow in the garden. Cuttings started in summer in damp sand will make blooming plants for the next winter. They require only small pots, should be shaded after transplanting and given very little water until they begin to grow, and then all the sunshine possible. Pinch off the first flower buds to induce a stocky growth. Both single and double Petunias may be grown in the open ground through the summer and potted in fall for winter blooming.

There are hundreds of varieties of single Petunias, ranging through the shades of crimson and rose to pure white, striped mottled, and self-colored.

VARIETIES OF DOUBLE PETUNIA.

Acteon, rose, varied with dark purple ; large.
Ada, purple, crimson and white.
Admiration, creamy white tinged with rose.
American Belle, variegated crimson and white.
Bridesmaid, white shaded blush ; very large.

Coquette, shaded and blotched violet and purple.
Elizabeth, pure white.
Evolution, purple, spotted white ; fringed edge.
Fimbriata, very large lilac ; fringed margin.
Md. de la Vergne, large, blush pink.
Queen of Whites, white, fine formed flowers.
Rosalind, violet.
Sable Queen, purplish maroon.
Snowball, pure white.

PHLOX DRUMMONDII.

The Phlox is named from the Greek, signifying a flame, in allusion to the appearance of the flowers. Phlox Drummondii was first discovered in Texas, in 1835, by Drummond, a collector sent out by the Glasgow Botanical Society. It is one of the most valuable annuals in cultivation and cannot be excelled in a brilliant and constant display of flowers, through the late summer and fall and if carefully lifted from the earth on the approach of winter will continue blooming a number of weeks in the house. With good cultivation it grows about eighteen inches high, but does not stand erect. It flowers in clusters or corymbs, in colors ranging from pure white to deep crimson, also purple, yellow and striped. Crimson and white varieties grown in contrast produce a fine effect.

SOIL AND GENERAL TREATMENT.

Phlox thrives in loam enriched with leaf-mold and manure

It requires only a moderate supply of water, and is not particular as to temperature.

It is easily increased by seeds, or by cuttings under glass. Seeds may be sown in the open ground in May, or early in the spring in a hot-bed, or in boxes in the window. Plants may also be grown from seeds sown in pots in the summer and not allowed to bloom until they are brought into the house. They require no special care.

VARIETIES OF PHLOX DRUMMONDII.

Alba, pure while.

Atropurpurea striata, beautifully striped.

Coccinea, deep scarlet.

Grandiflora splendens, a new variety with large round flowers; bright scarlet with a conspicuous white eye.

Heynholdi, bright scarlet; dwarf and compact.

Isabellina, pale yellow.

Leopoldii, deep pink with white eye.

Oculata, white with purple eye.

Queen Victoria, violet, white eye.

Rosea, pure rose color.

POLIANTHES TUBEROSA.

(TUBEROSE.)

This plant is a native of the East Indies, and was first imported into Europe in 1629. The word Polianthes means literally many flowered. The delicious fragrance and beauty of its white wax-like flowers make it greatly sought for on occasions alike of joy and mourning. It is stated that five million bulbs are grown annually in the vicinity of New York. The Tuberose naturally flowers in August, but by having dry bulbs on hand they may be planted and forced into bloom at any time of year. Its blossoms are borne in spikes of twelve or more florets each.

SOIL, WATERING AND PROPAGATION.

The Tuberose thrives in a soil of equal parts of sandy loam, leaf-mold and well rotted manure.

They should have a plentiful supply of water when in growth.

The temperature should never be allowed to fall below 50° at night and should be kept as near 70° as possible during the day.

The Tuberose is increased by offsets, which under favorable circumstances make flowering bulbs the second season, offsets for propagation should be removed on taking up the old bulbs in the fall, and stored in a warm dry place through the winter; a temperature less than 50° destroys the flower germ. Plant them about the first of June, in well manured earth, six inches apart, and four inches below the surface; this depth tends to solidify the neck of the bulb and prevent decay. In a few weeks they will begin to grow, and by the end of October will be matured and ready to bloom the next season. Cut off the tops, not too near the bulbs, and put them in a warm dry place for the winter, or until wanted for forcing.

GENERAL TREATMENT.

The Tuberose flowers but once, therefore the old bulb should be thrown away after removing the offsets. The failure of this plant to bloom, has been a frequent source of disappointment. The cause has been discovered to be that the flower-germ was destroyed by keeping the bulbs in too low a temperature. Select only those which show signs of germination from the centre of the bulbs.

The Tuberose is a tropical plant and where summers are short does not always flower before the approach of frost. In such latitudes bulbs may be planted early in spring, in the house, where they should have the warmest location and but little water. Remove them to the garden when the weather is warm and settled. They may be flowered in early winter, by planting the dry bulbs in July or August, using seven-inch pots. Set the bulb firmly in the soil, half an inch below the surface, and sink the pots to the rim in the garden, where they may remain until the cool nights of autumn. When removed to the house give them plenty of water, and never allow them to get dry while the buds are developing, as this will cause them to blast.

BOTTOM HEAT AND VARIETIES.

One of the essential points of success in forcing the Tuberose is to keep the soil a few degrees warmer than the surrounding atmosphere. This is an easy matter in the green-house, when the pipes or flues can be used, but it will require some ingenuity to form a substitute for this in the house. The Waltonian case will answer and the reservoir of the kitchen stove, pans of hot water, or pieces of stone heated are sometimes used, though a uniform, regular heat is what is required. A convenient way for those who have not the time to attend to the proper cultivation of this plant is to buy bulbs with the flower stalks started.

Polianthes tuberosa plena, is the species mainly grown; but the single variety is valuable for its earliness, blooming in the open ground two weeks before the double.

Pearl, is a dwarf variety with flowers nearly double the size of the older sort.

PRIMULA CHINENSIS.

(CHINESE PRIMROSE.)

Primula, from *primus*, the first, is in allusion to the early flowering of the genus. The Chinese Primrose is a small but beautiful and constant blooming plant. For nine months in twelve they will yield flowers, a single plant producing 500 florets. They bloom most profusely from December to May, and with their colors, red, white, crimson, purple, and pink, are of great value for the window.

SOIL, WATERING AND GENERAL TREATMENT.

The Primrose grows well in equal parts of loam and leaf-mold.

They should have only a moderate supply of water, applied in small quantities daily. If the drainage is obstructed and the soil made too wet the plant will become sickly. The foliage should not be wet.

The temperature of living rooms suits them.

They are propagated from seeds, cuttings or by dividing the plants as soon as they have done flowering. Seeds sown in July, will make blooming plants in January. When four or five leaves have developed transplant to 3-inch pots and shade a few days. Plants should have the morning or evening, but never the noonday sun. They will even do well in north windows. Cuttings taken from side shoots in May, will make blooming plants for fall and winter.

The pots of Primrose may be plunged out of doors in June, in a shaded location and very sparingly watered through the summer. Repot them carefully in the fall, and shade a few days. They should not be crowded together, or with other plants. A window side-bracket is most suitable for them. They are never infested with insects. The single fringed varieties are best adapted to window culture as they are more hardy than the double.

VARIETIES OF THE PRIMULA SINEUSIS.

Fimbriata alba, single white.

Fimbriata alba plena, double white,

Fimbriata erecta superba alba-violascens, pure white on opening, changing to lilac with red border, free bloomer.

Filicifolia alba, white, fern-leaved, beautiful.

Filicifolia rubra, red, fern-leaved.

Kermesina splendens, bright carmine, with distinct yellow eye.

Punctata elegantissima, deep velvety crimson, strongly fringed and regularly marked at the borders with snowy white.

Rubra, red, and *Rubra plena*, double red.

PYRETHRUM.

(FEVERFEW.)

The Pyrethrum named from *pyr*, fire, because the roots are hot to the taste, is a native of the Caucasus mountains; it is often called Mountain Daisy, and is allied to the well-known Chamomile. Its bright, delicate green foliage, pure white and very double flowers, borne in great abundance and remaining perfect a long time, united with ease of cultivation, fit it for a desirable window plant. Its flowers are much used for funeral decorations.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Pyrethrum thrives in a sandy loam enriched with well rotted manure.

It requires only a scanty supply of water, and does best in a cool temperature.

It is easily increased by cuttings, which strike readily in water, or by division of the roots.

Old plants should be well pruned in March or April, and the cuttings rooted for the following winter. Both old and new plants may be set out in the garden in May. The flower-buds of those which are to be winter blooming should be pinched off through the fall. In September pot, shade and scantily water them for a few days before bringing into the house. They are half-hardy and will endure considerable frost. Old plants may be taken up with plenty of earth, shorn of foliage and wintered in the cellar, though this is not necessary in mild latitudes.

Pyrethrum Golden Gem, a novelty, fine for bedding out, large double white flowers, continued throughout the summer. The color of the foliage is much brighter than that of the old Golden Feather.

P. parthenifolium aureum, Golden Feather, prized for its yellow foliage.

P. Parthenium flore-pleno, the double Feverfew.

RANUNCULUS.

This plant is named from *rana*, a frog ; many of the species are found in moist places frequented by that reptile. It is an extensive genus, mostly native of Europe and North America, embracing the common field Butter-cup or Crowfoot. A few varieties bear a profusion of elegant and diversely colored flowers, remarkable for symmetry and compactness, nearly as large as roses and valuable for the window garden.

SOIL, WATERING AND GENERAL TREATMENT.

The Ranunculus thrives in fresh loam enriched with well rotted manure.

It requires a moderate supply of water, slightly increased when forcing for bloom, and it will flower best in a cool moist atmosphere.

It is propagated from seed, or by dividing.

The plant has curious tooth-like roots, which may be kept on hand in a dry state, for years and forced into bloom at any season. For winter flowering, select roots that have been out of the ground the summer previous, as they will bloom better for having had rest. A fine effect may be produced by planting three roots of diverse colors in each 4-inch pot. Press them firmly in the soil half an inch below the surface. Place them in a cool shaded location, a cellar or cold frame. By planting at intervals, commencing in July, a succession of bloom may be produced throughout the winter. Early in October, begin bringing them forward to the light and warmth. They must be shaded from the sun which injures their bright colors. After blooming dry off and put away the bulbs for future use.

Ranunculus Asiaticus and its varieties are most suitable for pot culture.

Seedsmens catalogues give a large list of named sorts.

RESEDA ODORATA.

(MIGNONETTE.)

The name Reseda is from *resedo*, to calm or appease; the Latins considered its application useful in external bruises. Mignonette is a diminutive of the French *mignon*, darling. The plant is an old and universal favorite on account of the delicious perfume of its flowers which Linnaeus compares to that of Ambrosia. It is principally native of Europe and Egypt. In France and Germany it is extensively grown in boxes made to fit into windows and balconies. When in perfection it makes a fine house plant and it will last many years, bearing an abundance of agreeable flowers, useful in bouquet making.

SOIL, GENERAL TREATMENT AND VARIETIES.

Mignonette thrives in a soil of three parts loam, one part leaf-mold and one part manure.

It requires a moderate supply of water, and does well in the ordinary living-room temperature.

It is easily increased by seed which for summer flowering may be sown in the open ground like that of other hardy annuals; but to obtain flowering plants through the winter sowings should be made in July and September, either in pots or the open border. Pinch off the top branches to induce a stocky growth, and prune in tree or shrub form as preferred, while the plant is young. If a tree is desired tie the stem to a stick or wire, when two inches high, to keep it straight. Remove every side branch till it reaches a foot in height, when they may be permitted to grow, but must be shortened occasionally to form a bushy top. The Reseda should be shifted as often as the pots are filled with roots. The noonday sun will sometimes turn the foliage yellow.

Parsons New White Mignonette, nearly white; the flowers are larger and the plant much more vigorous than the old sort.

Reseda Ameliorata, quite distinct from the old large flowered variety, its foliage and flowers are much larger; the plant is of pyramidal growth and attains a large size.

R. odorata, Sweet Mignonette, is a fine large flowered variety.

RICHARDIA ÆTHIOPICA.

(CALLA LILY.)

This well known and highly esteemed plant was named by Kunth, one of Humboldt's assistants, in honor of L. C. Richard, a celebrated French botanist. It is native of the Cape of Good Hope where it was first discovered in 1731. It is also often called the Easter Lily on account of its flowers being so much used at the commemoration of the resurrection. The Calla is worthy of cultivation for the stateliness and symmetry of its foliage alone; its dark shining leaves are borne with a royal grace. Its lily-like flowers, a cream-white spathe, enclosing a golden colored spadix is the gem of any collection. It endures much ill treatment and never fails to give a rich reward for proper care.

SOIL, WATERING, PROPAGATION AND GENERAL CARE.

The Calla grows best in in a soil composed largely of decayed wood. Peat or leaf-mold enriched with a little well rotted manure is suited to it.

It requires more water when in growth than almost any other plant—it is well to keep the pots standing in water—and none at all while at rest.

It is not particular as to temperature, but thrives and blooms best in 70° to 75 degrees.

The calla is increased by offsets from the roots which should be removed when the plant is repotted.

To produce winter bloom, lay the plant on its side in a shady location through the summer months. In September, when its leaves will all have withered, remove the earth from the bulbs by washing, and repot them. Set in a sunny location, water copiously twice a day and give an application of liquid fertilizer once a week. It will bloom in November, and one blossom succeed another until June when the plant must have rest. In its native clime it blooms in the wet and rests in the dry season.

FORCING, INSECTS AND VARIETIES.

A plant flowers better if grown in a pot by itself though if the bulbs are not large three may be grown in one vessel, separated a number of inches. Two flower buds often rise successively from the same leaf-stalk, the second will appear sooner if the first is not allowed to wither before cutting. The plant should not be removed to a cooler room while blooming; such a change may cause the bud to decay or blast the open flower. A few drops of aqua ammonia added to the water which is given the plant, once a week, will stimulate growth and bloom. To accelerate flowering it is well to give it quite warm water and by increasing the heat at each application, it will even bear boiling water. This is frequently done to force bloom and does not injure the plant.

The Calla is liable to be infested with spiders. A vigilant watch should be kept for them, and the plant frequently washed with soapsuds which, if persevered in, will exterminate them.

Richardia Æthiopica, the old large variety attaining three feet in height; flowers sometimes eight inches in length.

Richardia Æthiopica Nana, a dwarf variety smaller in all its parts than the common Calla. In this respect it is more desirable, being more convenient to handle than the strong growing species; the flower also being much smaller are available for vases, baskets of cut flowers, or other decorations.

ROSE.

The name for the Queen of Flowers is similar in all European languages but the English word Rose is attributed to the Celtic *rhod*, red; in reference to its prevailing color. It is native of all regions of the globe from the frozen Arctics to Sahara; where soil and moisture disappear the Moss Rose flourishes. Asia has the greatest number of species and China has furnished the parent varieties of the house Rose. The effect of cultivation to increase and beautify plants is well illustrated in the Rose. Only four species were known in the early ages ; there are now more than seven thousand. The wild brier is parent alike of the constant-blooming Tea Rose and the hundred leaved varieties.

In the classic ages it was a domestic flower that inspired the devotion of all. The Romans were wild in their enthusiasm over it. They used it alike to decorate their feasts and burials, to crown their heroes of war, to heal the sick, to perfume the bath, to clear the complexion and to brighten the eye ; they slept on couches made of roses, drank rose wine, and esteemed the oil of roses more precious than gold. In mythology the Rose was dedicated to the god of silence and a host in ancient times often suspended a rose over the guest table as an emblem of secrecy. Many curious superstitions and legends of this flower are cherished by the French, Germans and Italians. In this country its emblematic significance seems to be lost, though it is used in vast quantities for purposes of decoration and display and many florists with large investments of capital and skill make its cultivation a speciality.

SOIL, WATERING, TEMPERATURE AND PROPAGATION.

The Rose flourishes in widely different soils. Equal parts of loam, leaf-mold and well rotted manure are well suited to it. Some florists say a foundation of stiff clayey loam increases the substance and depth of coloring of the flowers.

Water regularly and moderately when in growth and very scantily when at rest.

In a dormant state, or while forming working roots, they should have a low temperature never exceeding 40° at night; when forcing for bloom 50° to 60° at night and 70° to 75° during the day.

The propagation of the rose is effected by every method capable of being applied to ligneous plants, but principally by cuttings or layering. Cuttings should contain three or four eyes. The wood should be sufficiently ripened to show the developement of buds at the axil of the leaf. They are often successfully rooted in pots in which other plants are growing; or they may be set as deep as the second eye in saucers or boxes of sand saturated with water. They will succeed best, if protected by glass. They may be propagated on a more extensive scale, by planting them in October or November, in a cold frame in soil composed of equal parts loam, leaf-mold and sand, and will be rooted in March and ready to pot, if merely kept from freezing through the winter. Set the cuttings about two inches apart. One thorough watering to settle the soil around them will probably be all they will need until spring.

Layering, the surest method of increasing the Rose for the amateur, may be done in the open ground. Bend down a shoot of a few weeks' growth, make an incision on the upper side nearly severing it, at a point where there are green leaves both above and below, and bury the cut part an inch in the soil, pegging it down. When the layer has rooted sever it from the parent plant. If a pot is sunk to the level of the rim, to receive the layer the important advantage will be gained of not being obliged to transplant, as the rose is slow to recover any disturbance of its roots. These make flowering plants the following spring.

GENERAL TREATMENT.

Roses for winter blooming should be summered in pots to avoid the destruction of the working roots, and the consequent check to their growth occasioned by repotting in the fall. If plunged in earth or sand, frequently shifted to larger pots and not allowed to get too dry in the hot days of summer they will make a vigorous growth. In long heavy rains the pots should be lifted a few hours to dry. It should be remembered that if the fine white tender extremeties, the growing points of the roots, are disturbed by transplanting, or killed by the hot sun striking the surface of the pots, or by a sodden soil, the health of the plant is destroyed and new working roots must be formed before growth can proceed, or the plant be forced into bloom. Roses do better in smaller pots in proportion to their size than almost any other plant.

Roses that have bloomed in the garden through the summer need rest. Place them in a cellar after potting and withhold water until their leaves die. Two months before they are wanted for blooming, prune and water sparingly. Let them remain in the low temperature of the cellar until working roots have formed and a new growth commenced. They may now be brought forward to light and warmth and the temperature gradually increased to 70° or 75°.

PRUNING, LIQUID FERTILIZERS AND INSECTS.

In regard to pruning:—the finest flowers grow upon the new shoots, the old stems should be pruned closest. It is a good rule to cut the weak, unhealthy branches and a few of the new ones after blooming. Growers have diverse opinions in regard to pruning roses. A celebrated English florist says:—"A rose in a vigorous condition, healthy and full of sap requires less pruning than when it is of a moderate or weak growth. The same degree of pruning applied to each condition would produce opposite results. Close pruning would be the means of improving a weak plant, while it would induce a strong one to form wood shoots rather than buds."

A frequent application of liquid manure is beneficial to the Rose but care must be used not to make it so strong as to cause the leaves to fall. A decoction of soot will also facilitate growth. Dissolve a tablespoonful of soot in two quarts of warm water, and apply it to the roots once a week.

If infested with rose-slug or spider, wash them frequently with whale-oil soap-suds, or give them a quick plunge several times a day in water heated to about 120 degrees. To prevent the appearance of aphis fumigate frequently, or syringe both upper and under sides of the leaves with tobacco water. It is easier to prevent their coming than to destroy them when established. The remedy for the common angle-worms which sometimes injure the roots, is lime-water.

THE VARIETIES SUITED FOR HOUSE CULTURE.

The Moss, Damask, Climbing, Hybrid Perpetual and several other classes are strong, coarse-growing and suited to out-of-door culture. The China, Bourbon and Tea which belong to the Monthly or Ever-blooming class are the ones most fit for house culture. They are distinguished by their more delicate and shining leaves and stems. These varieties are descended from the old *Rosa Indica,* the common China or Bengal Rose ; *R. odorata* the Chinese or Sweet-scented Tea Rose and *R. semperflorens,* the Chinese crimson Rose. By skilful hybridization a vast number of named sorts have been produced; only a few desirable ones can be given.

VARIETIES OF THE CHINA OR BENGAL ROSE.

This class known as the Monthly or Daily Rose, is usually stout growing and stocky, leaves generally smooth, glossy, fine cut and abundant. They were introduced into cultivation in 1789, are half-hardy and will endure much ill treatment.

Agrippina, or *Cramoisi Superieur*, rich velvety-crimson, very double.

Eels Blush, a profuse bloomer ; flowers large and double, resembling a tea rose.

Eugene Beauharnais, bright amaranth, fine form and fragrant.

Indica or Common Daily Rose, dark blush or rose color ; free grower and profuse bloomer.

Jacksonia, bright red, very double.

La Superbe, purple-crimson, flowers always opening well.

Madame Morel, cream color, pink centre.

Semperflorens, or *Sanguinea*, rich crimson, very double.

VARIETIES OF THE TEA ROSE.

This class from *R. odoratissima*, brought from China, in 1810, have a more delicate and graceful habit than the China Rose, and want more light, care, and a richer soil.

Adam, bright pink, large and cupped.

Aurora, yellow, shaded rose.

Bella, pure white, tea scented.

Bon Silene, rich pink, large.

Caroline, bright rosy pink or flesh-colored, large and fine.

Clara Sylvain, pure white ; double ; very fragrant.

Isabella Sprunt, bright canary-color, rich tea odor.

Madame Falcot, orange yellow, very free bloomer.

Madame Desprez, white, very fragrant.

Safrano, orange ; an abundant bloomer ; rich tea odor.

Souvenir d'un Ami, light lilac.

VARIETIES OF THE BOURBON ROSE.

This new and distinct race of vigorous and beautiful roses are a union of the China with the

Damask Perpetual. They are hardy south of New York and will endure New England winters with a slight protection. They are not so suitable for the winter window garden as others, but will bloom all summer and are fine for bedding out.

Bosanquet, rich blush, free grower and bloomer.
Bouquet de Flore, deep carmine, large and fragrant.
Henry Clay, pale blush.
Hermosa, light rose, free bloomer, largely cultivated.
Mrs. Bosanquet, pale flesh-color; very fine.
Froserpine, light carmine, very fragrant.
Queen of Bourbons, rich blush, of a quite dwarf habit.
Sombriel, blush white, strong grower.
Souvenir de la Malmaison, flesh-color, very double, splendid.

SALVIA.

This plant is named from *salvo*, to save; in allusion to the healing qualities of Sage. It is an extensive genus with brilliant colored flowers, mainly scarlet, blue and white, grown in gardens and suitable also for the window. The flowering varieties most cultivated in this country are natives of Mexico and Southern Europe. The well known culinary Sage is *Salvia Officinalis*.

SOIL, WATERING AND GENERAL TREATMENT.

The Salvia grows well in a soil three parts sandy loam and one of leaf-mold.

It needs to be watered freely except when growth is retarded from any cause.

A temperature of 45° by night and 60° by day suits it best, though it does well in living rooms.

Most varieties are raised from seed which may be sown in the house in March and planted out in May, or grown for the window at any season. *S. Patens* seeds very sparingly and is generally increased by cuttings, a method by which any of the Salvias may be propagated. Remove most of foliage from the slips and start them in damp sand.

Those wanted for the house can be potted, plunged in the earth and the buds pinched back that the plant may store up strength for winter. Before frost bring them in and give them liquid fertilizer weekly till they bloom. In May cut them back for the out door garden. The size of old plants unfit them for the window and new ones should be started as required.

VARIETIES.

Salvia fulgens variegata, a winter blooming variety, flowers bright scarlet, foliage variegated with white.

S. Heeri, winter flowering, blooms well in a cool atmosphere; flowers in long terminal spikes, glossy scarlet with a carmine tint, one and one-half to two inches in length.

S. Officinalis Var., a beautiful tri-colored variety of the common Sage; leaves white, green, and pink blotched.

S. Patens, flowers a rich shade of blue; its fleshy roots may be preserved like a Dahlia through the winter.

S. Rosea, a distinct winter-flowering variety with rich rose-colored flowers, borne in spikes six inches in length.

S. Splendens, Scarlet Sage, flowers brilliant scarlet, attains a height and breadth of six feet.

S. Splendens Alba, pure white, rather dwarfer than the scarlet.

S. Splendens Gordonii, dwarf variety of *S. Splendens*.

SAXIFRAGA.

Saxifraga named from *saxum,* a rock, and *frangere* to break, in allusion to the supposed lithonthriptic qualities of some of the species, is a native of both temperate and frigid zones. It is usually found growing over rocks. The species used for house-culture is commonly called from its habit Strawberry Geranium. Its trailing tendrils reach a length of several feet and bear curious tufts of hirsute dark green leaves with silvery veins. Its clusters of delicate white flowers are unimportant; the plant is cultivated for its beautiful foliage.

SOIL, WATERING AND GENERAL TREATMENT.

Saxifraga thrives in a soil of equal parts sandy loam and leaf-mold.

It requires a moderate supply of water, slightly increased when the plant is making rapid growth and diminished when in a dormant state.

It grows best in shade, and wants a rather cool atmosphere.

The plant is readily increased by seeds or divisions of the roots. Small plants should be removed as they form around the old one. An application of liquid fertilizer once in two weeks stimulates a rapid growth. The plant is admirably adapted to growing in hanging baskets in north windows, and needs very little care.

Saxifraga Sarmentosa, is the variety commonly grown for hanging baskets.

SEDUM.

(STONECROP.)

The name Sedum is from *sedere,* to sit; the plants are found growing upon stones, rocks, walls, and roofs of houses, and look as if sitting there. They are interesting succulent plants, native of Europe and Northern Asia. The hardy species are adapted to growing over rock or rustic work, ornamental mounds or old stone walls. The tender kinds are admirable for hanging baskets or vases

SOIL, TREATMENT AND VARIETIES.

Sedums grow best in a mixture of sandy loam and fine brick-rubbish well enriched with rotted manure.

They require an abundant supply of water and a rather high temperature.

They are easily increased by cuttings or divisions.

Give the plants fresh air frequently and a full exposure to the light Care should be used to let no water touch the leaves. Repot them in fresh soil every year.

Sedum Sieboldi, a fine trailing plant of easy growth, for hanging baskets. It has a peculiar habit; from a central crown appear a number of slender branches that attain a length of eighteen inches with leaves in groups of three at regular intervals, and large clusters of flowers at their ends. The flower-buds are a long time in developing. After blooming the stems die down and a new growth from the root immediately succeeds. The plant with good culture will improve every year. It needs a somewhat shaded and sheltered location.

SENECIO SCANDENS.

(GERMAN IVY.)

The name Senecio is from *senex* an old man; the receptacle, or summit of the flower stalk, is naked and resembles a bald head. Senecio Scandens is called an Ivy, probably from its hederaceous habit, the leaves are similar in form, but they are of a much lighter green, of an entirely different texture and lack the conspicuous veins of the Hedera. Its rapid growth of vivid green foliage which may be easily twined about any object renders it one of the most available plants for house decoration. A strong plant will grow in one winter around three sides of a room and festoon windows, doors and pictures, imparting to it a cheeriness and grace without cost or trouble. Its flowers borne in clusters of a bright yellow color resembling those of the Golden Rod, but are not particularly striking.

SOIL, GENERAL TREATMENT AND VARIETIES.

The plant thrives in loam enriched with leaf-mold.

It grows best in a temperature from 60° to 70°, but endures the common house atmosphere.

It should have a plentiful supply of water when growing rapidly and less when growth is checked from any cause.

Senecio Scandens is easily propagated, rooting freely in soil, sand or water.

It may be grown in vases of water or in vials suspended behind pictures or mirrors, but much more rapidly and luxuriantly in soil. Its foliage is very tender and it should be handled without touching its leaves. It thrives best in partial shade and should not have the noon-day sun. Insects never trouble it.

Senecio Macroglossis, a variety coming into use, much more resembles the English Ivy than *Senecio Scandens*, in the leaves having a darker green, and similar texture, thickness, conspicuous veins and mid-rib.

SOLANUM PSEUDO-CAPSICUM.

(JERUSALEM CHERRY.)

The derivation of the word Solanum is uncertain. The genus includes a great number of widely different species, some dangerously poisonous. as the deadly Nightshade, others exceedingly valuable as the common potato, *Solanum tuberosaum*, discovered in Peru, in 1597, which although it now constitutes a large portion of the food of civilized man, was very little known until the 17th century, and has been extensively cultivated only within the last hundred years. The Jerusalem Cherry was introduced from Madeira nearly three centuries ago and was seen in every collection of plants. It was highly valued for its beautiful glossy-green foliage, and brilliant cherry-like fruit, but has lost its former popularity. In England, where much attention is paid to table decoration, plants with bright berries are in great demand, and much more care is given to its cultivation than with us.

SOIL, GENERAL TREATMENT AND VARIETIES.

The plant thrives best in sandy loam, enriched with well rotted manure.

It requires a moderate supply of water, with plenty of sun and air, and is not particular as to temperature.

They are increased by seed, or by cuttings rooted in sand under glass. Seed should be sown in pots in April, and transplanted to the open ground in a rich soil and sunny location, as soon as the weather is warm enough. If they thrive they will be in fruit the next winter. Pot them before frost, carefully water and shade a few days, and place them in a sunny window. They require only ordinary care.

Solanum Ciliatum, a species from Porto Rico, superior to all others as a table ornament. It has beautiful dark green, glossy foliage, prickly stems, and bears a profusion of large, brilliant, scarlet berries having a delicate bloom ; height eighteen inches.

S. Hybridum Herdesnoii, a variety with freely branched growth 12 to 18 inches in height, with small green leaves and creamy white blossoms, succeeded by a profusion of erect cone-shaped fruit of a brilliant orange color.

S. Jasminoides, a pretty climber, with dark green foliage and white flowers in large clusters ; leaves variegated with white, the edges having a purple tint ; a rampant grower ; fine around a window or to cover a trellis. Will bloom all winter.

S. Pseudo-Capsicum Var., leaves bordered with creamy white.

STEVIA.

The name Stevia was given this genus of plants in honor of Peter James Esteve, M.D., professor of Botany at Valencia. They are principally natives of Mexico, from whence they were first brought in 1798, and are extensively cultivated by florists for their white feathery-like sprays of flowers, admirably adapted for mingling with bright colors. The Stevia has foliage similar to the Eupatorium, but a more delicate and feathery flower.

SOIL, GENERAL TREATMENT AND VARIETIES.

A rich garden soil or sandy loam containing some leaf-mold, suits the Stevia.

Give it plenty of water and a low temperature.

The plant is easily increased from seeds, divisions or cuttings.

Seeds started in spring, or cuttings rooted in early summer, may be potted, plunged in the earth and the buds pinched off until November, and make fine early winter-blooming plants. They should have as low a temperature as possible without freezing them in November. In the spring cut the plant well back and repot in fresh soil; if intended for another winter, the pots may be plunged and buds pinched back as before.

Stevia compacta, snowy white, blooming earlier and continuing longer in bloom than any other; best from November to January.

S. serrata, white, flowering during January and February.

S. serrata, var., leaves variegated with creamy white.

THUNBERGIA.

This genus of plants, named in honor of Charles P. Thunberg, a celebrated traveller and botanist, is mostly native of Cape of Good Hope and East Indies. They are free-blooming climbers, adapted to a warm location in the garden, but very much better suited to the house and conservatory. The flowers are white, buff, or orange, generally with a dark eye. The plant starts slowly at first, but when it begins to run, makes a rapid growth and may be used for hanging baskets, if a climbing rather than a trailing vine is desired.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Thunbergia succeeds well in a mixture of sandy loam and leaf-mold.

It requires a moderate supply of water, and thrives in the ordinary temperature of the house.

They are readily increased by seeds, or by cuttings started in sand. Seeds may be sown under glass early in spring for summer flowering, or in August, in pots for the house. They will begin to bloom when quite small, but the early flower-buds should be removed until the plant is of the required size, as growth stops, if they are allowed to bloom too early. They may be grown in pots and trained to a trellis, or in baskets, and be allowed to either climb or trail.

Thunbergia alata, buff, with white eye.
T. alba, white, with dark eye.
T. aurantiaca, bright orange, dark eye.
T. Bakerii, pure white.

TRADESCANTIA.

This plant is named in honor of John Tradescant, gardener to Charles I. of England, where it was introduced from North America in 1629. It has received many common names in different localities, as Wandering Jew, Joseph's Coat, Jacob's Ladder, Air-Plant, etc. It is extensively cultivated and valuable for the endurance, rapidity of growth, and brightness of the satiny foliage displayed in some of its varieties. It will live and thrive under treatment from which most other plants would die.

SOIL, TREATMENT AND VARIETIES.

Tradescantia thrives best in a mixture of loam and leaf-mold.

It should have plenty of water and is not particular as to temperature, though it does best in a warm location in partial shade.

It is easily increased by cuttings which root and will grow for months in water. Two or three varieties grown in vases make a pleasing ornament. Frequent showerings increase the brightness of its foliage.

Tradescantia aquatica, very small green leaves for aquariums, hanging baskets, etc.

T. Crassula, strong growing, with white flowers.

T. Discolor, a strong growing sort, the leaves borne upright, the underside violet-purple, the upper light green, suitable for centre of baskets or vases.

T. Repens Vittata, bright green, striped white.

T. Vulgaris, drooping, with bright glossy green leaves.

T. Zebrina, leaves striped with silvery white on a dark ground.

TROPÆOLUM.

The leaves of the Tropæolum resemble a buckler, and the flowers an empty helmet, hence the name, from *tropaion*, a trophy. They are natives of South America, are extensively cultivated in gardens and have long been a popular favorite. The seeds of *T. majus* are pickled and used as capers, to which they are preferred by some. The roots of *T. tuberosum* are eaten in Peru. The plant is sometimes called Nasturtium or Indian Cress, and has the same antiscorbutic properties as Water Cress, which is one of the Nasturtiums. Some species of this beautiful genus may be found alike in the costliest conservatory and the poor man's garden. All the varieties are of rapid growth and free bloomers, none are destitute of some beauty, while the greater number are remarkable for their bright, rich velvety colors of yellow, orange and red. In 1842 *T. axzreum*, a beautiful blue, was discovered in Chili. It had been supposed that there could not be a blue flowering plant in the same class with those of red, yellow or cognate colors. The discovery of a blue Trapæolum was, therefore, an extraordinary event.

Tropæolums may be divided into three classes. First, those with tuberous roots as *Tropœolum azureum*. Second, those with large round leaves, and large, showy, often coarse flowers, as the varieties of *Tropœolum majus*. Third, those with small, delicate, regularly formed flowers, and a climbing, rather than trailing habit, such as *T. Lobbianum*, named from M. Lobb, who first collected it in Columbia in 1843. The latter is the variety suitable for house culture, and whose treatment only is given. It may be grown in pots or baskets, but requires much soil and room for its roots.

TREATMENT AND VARIETIES OF TROPÆOLUM LOBBIANUM.

They thrive best in a mixture of sandy loam and leaf-mold. In too rich, soil grow an excess of foliage.

Give them plenty of water with good drainage, and a temperature of about 50 to 70 degrees.

They produce seed sparingly, but are easily increased by cuttings in sand, or soil under glass.

Keep them a little pot-bound to prevent them from producing leaves so abundantly as to hide their flowers, and apply liquid manure occasionally. They are troubled but little with insects.

Caroline Smith, spotted.
Lilli Smith, orange-scarlet.
Giant of Battles, brilliant carmine.
Napoleon III., yellow, striped with vermilion
Queen Victoria, vermilion, scarlet striped.

VERBENA.

The English name *vervain* and the Latin *verbena* are supposed to be derived from the Celtic *ferfaen*.

The plant is principally native of South America. The three oldest species were introduced from Peru, Buenos Ayres and Brazil, from 1818 to 1834; from these have sprung many hundreds of varieties, and the Verbena has become the most popular bedding-out plant of the day. Its flowers are in every color except yellow. The qualities of a perfect Verbena are, roundness of form without indenture; petals thick, flat, bright and smooth; the trusses of bloom compact, and standing out from the foliage; the flowers meeting but not crowding each other, or changing in the sun. The plant should be compact, with short, strong joints, either distinctly of a shrubby habit, a close ground-creeper, or a climber.

SOIL, WATERING AND PROPAGATION.

A soil of sandy loam and leaf-mold in equal parts will suit the Verbena.

The plant grows on dry hills in South America; it wants only a moderate supply of water, good drainage and an even temperature of about 50 degrees. Too much heat and moisture cause mildew and decay of the roots.

Verbenas are easily increased by seeds, cuttings or layers. Cuttings for winter-blooming plants should be made of young, healthy shoots, such as will break on being bent, taken late in July or early in August, rooted in damp sand, and potted in small pots as soon as the roots are half an inch long, which they will attain in about two weeks. If the roots grow long and become hardened before removing from the sand the plants will be slim and weak. Cuttings strike so readily that laying is not advisable. Self-rooted layers form roots so low down that they will not produce as healthy plants as cuttings of younger growth.

Verbenas seed well if the plants have not been too long propagated by cuttings. Seeds should be soaked in warm water over night before planting, and may be sown early in spring in shallow boxes, filled with leaf-mold and sand, and covered with a thin layer of the mold. Set them out when an inch and a half high in boxes of similar soil, two inches apart, or, a better method is to use 2-inch pots and plunge them in sand. Set those designed for budding out in the open ground, as soon as the weather is warm enough. They will bloom in three months. It is well to pinch off the first flower buds and let the plants become strong before blooming. From these seedlings make cuttings of the most desirable varieties for winter bloom.

It is important that the house Verbenas be fumigated once a week as a preventative for the aphis. Tobacco smoke, it is thought, has also a tendency to exempt them from black rust, the work of a minute insect, sometimes called the "Verbena mite" which is most destructive in a high temperature, hence the importance of keeping them in a cool room. When young plants are brought into the house, they should remain a few weeks without fire heat, and never have a temperature above 50 degrees until they commence to bud. Give them water during this season only by sprinkling when they become too dry. When buds appear they may be brought forward to the sitting-room window, and placed near the glass, there they may have plenty of sun. Prune them back frequently to check off straggling growth. Plants that have bloomed in the house will not be as vigorous for bedding out as new plants raised from seed or cuttings.

The constant improvement in Verbenas and vast number of named sorts render it impossible to give a list of varieties of any value. One grower produces thirty new names a year, and lists 100 named sorts, none of which are found in other florists' catalogues.

VIOLA ODORATA.

(SWEET VIOLET.)

The Sweet or English Violet is characterized by its long, trailing, leafy runners. Its leaves are heart-shaped, and flowers so deliciously fragrant that a single one will perfume a bouquet, or a room, with its delightful aroma. They are in great demand in large cities during the winter months ; a hundred thousand square feet of glass are used in growing Violets for the New York market, and some florists make it an exclusive business. They may be grown in cool rooms in the house.

SOIL, GENERAL TREATMENT AND VARIETIES.

The Violet requires a rich soil to bloom luxuriantly; equal parts loam, leaf-mold and manure will answer.

The supply of water should not be excessive, and they should have good drainage

A temperature from 45° to 65° suits them best. If grown in a room heated to 70° the flowers will be small and the stalks slender.

The Violet produces little or no seed. They are propagated by divisions of the roots, or by cuttings taken in June and raised in wet sand under glass.

When forcing for bloom the runners and all fading leaves should be cut off as soon as they appear. The plants require an unusual depth of soil, and should be grown in deep pots or boxes. A tea made of rotten wood is a good fertilizer for them.

Double Blue Neapolitan, the variety most cultivated.

Double White Neapolitan, double white flowers.

King of Violets, large double blue, one inch in diameter.

Queen of Violets, blush-white, flowers very double.

Russian Violet, light blue, single, but very large, fine and exceedingly fragrant; blooms from September to May.

Shonbrun, single blue, flowers very prolific.

VIOLA TRICOLOR.

(PANSY.)

The Pansy is said to have been introduced into cultivation in 1812 by Lady Monck. It was known in its old-fashioned days by many names, as Three-Faces-under-one-Hood, Herb Trinity, Love in Idleness, Johnny-jump-up, Kit-run-about, and Heart's Ease, and universally loved, not only for its fragrance and beauty, but its emblematic significance of faithfulness. In the hands of the florist, the Pansy has undergone such changes in form and color, and is so much increased in size, that we scarcely recognize in it the friend of our childhood. The essential points of a perfect Pansy are now considered to be, that its form should be a complete circle without notch or indentation ; petals large and broad ; the eye clear and well defined ; the colors rich and vivid, and of a velvety appearance ; the size not less than an inch and a half. The principal color of the lower petals should be alike, and the markings or pencilings on the ground color, bright and distinct and retain their character without running or flushing.

The Pansy, though not so fragrant as the Sweet Violet, takes more kindly to living-room temperature, and endures greater change of atmosphere. It has the same fondness for shade, and may be grown in north-west windows, where it will flower abundantly during the dark days of winter.

SOIL, PROPAGATION AND TREATMENT.

Pansies thrive in equal parts loam, leaf-mold and well rotted manure.

They want plenty of water ; a cool temperature.

They are easily propagated by seed, cuttings, or layers. Seed should be saved only from the finest varieties and sown in April in boxes of leaf-mold covered with glass. When little more than an inch high, transplant those designed for the window in deep boxes or pots. Those for winter-flowering should only be allowed to bloom once that the finest may be discovered and preserved. Pinch off the buds and cut the tops back until fall and they will make strong, healthy plants for winter.

As seed is not certain to come true, choice varieties may be increased by cuttings. Cut off three inches of the ends of the shoots directly below a joint, strip up the lower leaves and root them in wet sand under glass. Shade from the hot sun.

Layering from plants grown in the open ground is easily done. Sink a few pots filled with compost conveniently near the old plant. Make an incision at a joint, half severing a new shoot. Fasten this point down in a pot and cover with soil. When rooted they may be severed from the parent plant.

The largest blossoms are produced by young plants. To keep them thrifty and blooming freely, do not allow them to seed, but pick the flowers before they fade. If exhausted by over-blooming, cut off the plant a few inches above the surface of the ground, this will check growth and allow time for recuperation by the formation of new roots. Liquid manure is beneficial ; they are not troubled with insects and need little care.

ADDITIONAL LIST OF PLANTS.

The following descriptive list embraces either rare greenhouse plants, or annuals which are adaptable to house culture, but whose treatment is not considered essential to the present work :

Achimenes, beautiful bulbous plants for greenhouse or conservatory in summer, of dwarf, compact branching habit, with a profusion of clear crystal-like flowers in bright colors, which are injured by the least exposure to the sun. They bloom about three months. The bulbs should be dried off and kept warm through the winter.

Allamanda, a valuable green-house plant, having large, deep, yellow flowers four inches in diameter. It can be trained to climb or be grown as a shrub. It blooms nearly the entire season.

Aloe, an extensive genus, formerly very common. The different species present a great diversity in size and habit, as well as in the shape of their leaves and character of the flowers. Some have stems several feet in height, while others are stemless, and rise but a few inches above the surface of the earth. In all the species the leaves are thick and fleshy, in this respect resembling the Century-plant, which is frequently called the American Aloe. They are natives of South Africa and of the East and West Indies. Among those cultivated for peculiar foliage the *Aloe variegata* or Partridge-Breasted Aloe, is especially beautiful. Its specific name is derived from the peculiar markings of the variegation, resembling those on the breast of a partridge, the white lines being transverse on the leaves, and the green color running into them in a beautifully pencilled manner. *Aloe verrucosa*, or Warty Aloe, is cultivated for peculiar foliage as well as beautiful flowers. The leaves of this species are curiously superposed in two rows, of a dark green color, thickly covered with small excresences or warts. The flowers are red, and borne in simple racemes.

Ampelopsis Quinquefolia, the well-known Virginia Creeper. Its dense foliage and drooping, graceful festoons, so charming and luxuriant in its natural state, becomes dwarfed by change to the hanging basket, into a little gem that cannot fail to elicit admiration.

Anomatheca, flowers during the summer, and are very showy, colors pink and scarlet.

Armeniaca vulgaris, or Thrift, also commonly called Sea Lavender or Sea Pink, narrow grass-like leaves and clusters of little pink flowers, extensively cultivated as a border plant, makes a valuable house-plant in winter by reason of its hardiness and profusion of bloom.

Babiana, a very handsome genus of Cape Bulbs with hairy, plaited leaves and brilliant flowers; colors, dark blue, dazzling crimson, white, purple, lilac and pink. The plant is subject to attacks of the red spider, which should be carefully guarded against, for it is almost impossible to dislodge them from the hairy leaves.

Cedronella cordata, found from Pennsylvania southward along the Alleghany Mountains. Valuable for hanging baskets, bearing recemes of delicate flowers of a beautiful purplish blue. As a trailer it has a very pleasing effect, its leaves diminishing in size, and the space between them elongating towards the ends of the sprays.

Clerodendron Balfouri, a climber of great beauty, or susceptible of being trained as a shrub; flowers of a bright scarlet, with a calyx of pure white, borne in trusses or panicles six inches across; blooms most profusely in the winter months.

Cissus Discolor, a beautiful climber, its leaves shaded with dark green, purple and white, having a rich velvety appearance like that of Begonia Rex. The plant requires a high temperature to develop the coloring of the leaves, but must not have the direct rays of the sun.

Deutzia, a small shrub, bearing a wonderful profusion of double white flowers, the back of the petals tinged with purple or rose in some of the varieties.

Glechoma hederacea, Gill-over-the-ground, or Ground Ivy, is a hardy creeping or trailing evergreen, growing about hedges or walls; suitable for rock-work, and may be used with good effect for out-door hanging baskets or vases, as it grows rapidly and trails four or five feet.

Gloxinia, are handsome summer-blooming greenhouse plants, with rich and varied coloring of the flowers. The bulbs should be started in spring and after blooming all summer, require a season of rest. This can be done by gradually withholding water from them. After they are dried off, they may be kept in a warm, dry cellar.

Gypsophila, a delicate-foliaged, free-flowering plant, growing four inches high, easily raised from seed, and suitable for baskets or boxes. *G. Muralis,* pink flowers, and *G. Paniculata,* white.

Lapageria Rosea, one of the most beautiful vines known for cool conservatories or rooms, is an evergreen continuing in bloom a greater part of the year, leaves ovate-acuminate, two inches long, the stem green and slender. The flowers are three inches long, tube-shaped, of deep rose color outside, delicately marbled with a lighter and darker rose within. It is best propagated by divisions of the roots or by seeds, as cuttings make weak, short-lived plants. It does best in sandy peat, well drained, kept moist, and at a low temperature.

Laurestinus, a free-growing, free-blooming, evergreen shrub, with small white flowers in large flattened panicles, blooming from February to May. They should be grown in large pots and watered plentifully.

Lophospermum, are elegant climbers, with beautiful foxglove-like flowers of a red or rosy carmine, very effective for conservatory decoration, and may be used for hanging baskets.

Lysimachia Nummularia, or Money-wort, is admirably adapted to drooping around the edges of vases or hanging baskets, its graceful sprays often falling four feet, which in June are covered with bright yellow flowers. It grows best in partial shade.

Muhlenbeckia complexa, a beautiful trailing plant for hanging baskets, flowers very small, succeeded by a pure white fruit appearing much like a flower. The long wiry branches of symmetrical growth are produced in great abundance. It endures the dryness and changing atmosphere of dwellings.

Nerine Undulata, a very pretty bulbous plant, bearing umbels of flowers of a rosy, lilac color, the petals beautifully undulated or crisped on the edges, and of a glistening appearance. Blooms in October and November. They may be planted the last of August, three in a quart pot, in a soil of two-thirds sandy loam and one-third well rotted manure. When the leaves die off the pot should be turned on its side and remain without watering till the season for repotting comes.

Nierembergia Gracilis, a delicate, slender plant, bearing an abundance of whitish flowers, tinged with blue or lilac ; blooms the entire summer, and is fine for hanging baskets or vases.

Nierembergia Rivularis, an herbacious perrennial; of creeping habit, flowers pure white, with yellow disc ; fine for hanging baskets.

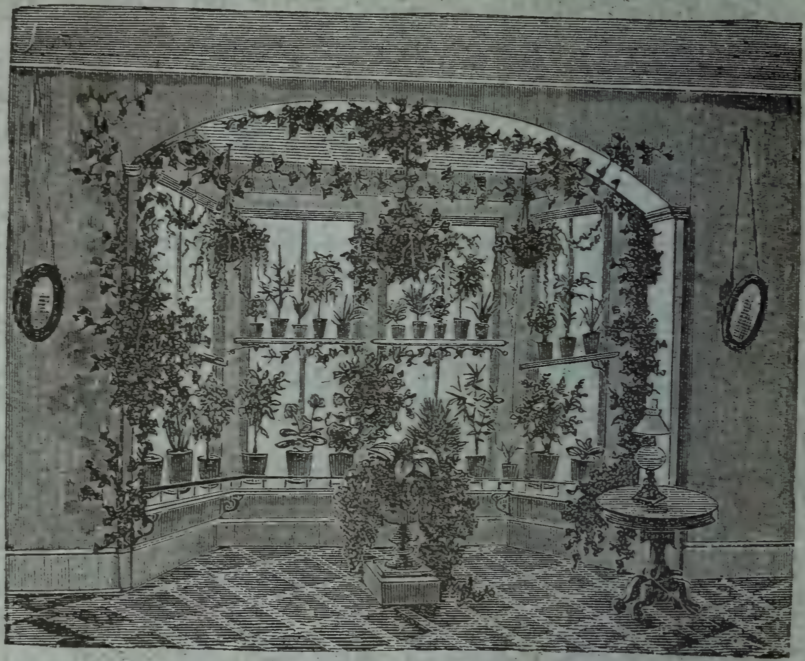
Ornithogalum Aureum, one of the finest bulbs for the green-house ; flower stem six or eight inches high, the flowers of a deep golden yellow, having a varnished appearance and lasting a long time.

Othonna crassifolia, a suculent plant excellently adapted for hanging baskets or vases, somewhat resembling some varieties of Sedums, endures the dry air of living-rooms, flower yellow.

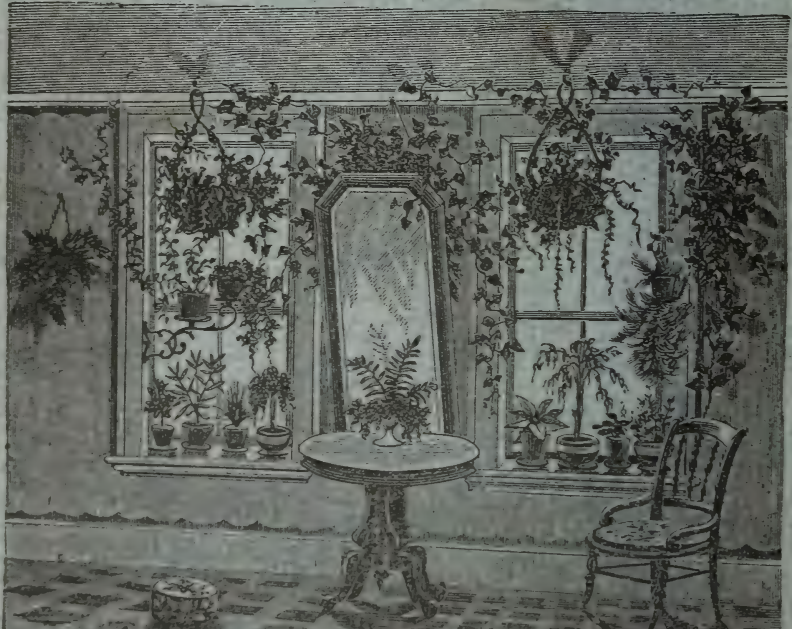
Panicum Variegatum, a variegated grass of creeping habit, valuable for baskets or vases. Its style of growth is peculiarly graceful, the color of its leaves dark green, white and rose. It attains a diameter of two feet in a few month's growth. It grows best in partial shade, though it requires plenty of heat.

Pilea Serpyllifolia, (Artillery Plant) leaves graceful, frond-like, always in flower which produce a snapping sound when water is thrown on them.

Pittosporum, an old fashioned plant prized for its fragrance rather than beauty of flower or foliage. Blooms from February to May, and thrives with very little sun.



THE BAY-WINDOW GARDEN.



THE SITTING ROOM.

LIBRARY OF CONGRESS
0000920796A